



## R450RC

Engine ref.	TAD1344GE
Alternator ref.	KH01741T
Canopy	M3228
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	352	440	320	400	635

### DESCRIPTIVE

- Four-pole circuit breaker
- Connection terminal box rental type
- Containment fuel tank and large autonomy
- Forks and frame protection pads
- Sockets pack : 1x32A 400V - 1x16A MONO indus - 1xMONO SCHUCCO
- Battery isolating switch
- Heavy duty air filter with interchangeable cartridge
- Primary fuel filter
- European socket packs
- Electronic governor with speed adjustment

### SMALL AUTONOMY DIMENSIONS

Length (mm)	5000
Width (mm)	1611
Height (mm)	2600
Dry weight (kg)	5489
Tank capacity (L)	1481

### 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)	69
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	99

### 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.



## R450RC

### ENGINE CHARACTERISTICS

#### GENERAL ENGINE DATAS

Engine brand	VOLVO
Engine ref.	TAD1344GE
Air inlet system	Turbo
Cylinders configuration	L
Number of cylinders	6
Displacement (L)	12,78
Charge Air coolant	Air/Air
Bore (mm) x Stroke (mm)	131 x 158
Compression ratio	18.1 : 1
Speed (RPM)	1500
Pistons speed (m/s)	7,90
Maximum stand-by power at rated RPM (kW)	399
Frequency regulation, steady state (%) +/-	0.25%
BMEP @ PRP 50 Hz (bar)	22,70
Governor type	Electronic

#### COOLING SYSTEM

Radiator & Engine capacity (L)	44
Fan power (kW)	10
Fan air flow w/o restriction (m <sup>3</sup> /s)	7,90
Available restriction on air flow (mm H <sub>2</sub> O)	20
Type of coolant	Glycol-Ethylene

#### EMISSIONS

Emission PM (g/kW.h)	0,06
Emission CO (g/kW.h)	0,45
Emission HC+NO <sub>x</sub> (g/kWh)	5,88
Emission HC (g/kW.h)	0,14

#### EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	465
Exhaust gas flow @ ESP 50Hz (L/s)	1125
Max. exhaust back pressure (mm H <sub>2</sub> O)	1000

#### FUEL

Consumption @ 100% load ESP (L/h)	91,50
Consumption @ 100% PRP load (L/h)	82,80
Consumption @ 75% PRP load (L/h)	63,10
Consumption @ 50% PRP load (L/h)	42,70
Maximum fuel pump flow (L/h)	120

#### OIL

Oil system capacity including filters (L)	36
Min. oil pressure (bar)	
Max. oil pressure (bar)	
Oil consumption 100% ESP 50Hz (L/h)	0,04
Oil sump capacity (L)	30

#### HEAT BALANCE

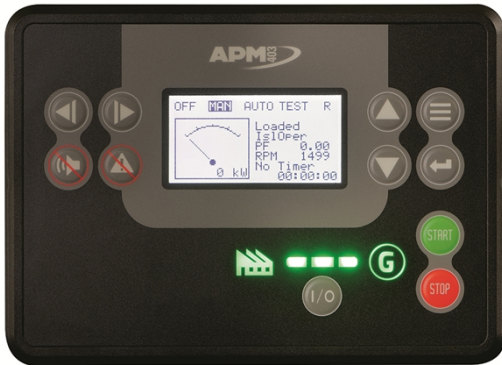
Heat rejection to exhaust (kW)	266
Radiated heat to ambient (kW)	15
Heat rejection to coolant HT (kW)	155

#### AIR INTAKE

Max. intake restriction (mm H <sub>2</sub> O)	510
Intake air flow (L/s)	467

Alternator ref.	KH01741T	Continuous Nominal Rating 40°C (kVA)	400
Number of Phase	Three phase	Standby Rating 27°C (kVA)	440
Power factor (Cos Phi)	0,80	Efficiencies 100% of load (%)	93,10
Altitude (m)	0 à 1000	Air flow (m3/s)	0,90
Overspeed (rpm)	2250	Short circuit ratio (Kcc)	0,2940
Number of pole	4	Direct axis synchro reactance unsaturated (Xd) (%)	393
Capacity for maintaining short circuit at 3 In for 10 s	Yes	Quadra axis synchro reactance unsaturated (Xq) (%)	200
Insulation class	H	Open circuit time constant (T'do) (ms)	1771
T° class (H/125°), continuous 40°C	H / 125°K	Direct axis transient reactance saturated (X'd) (%)	22,10
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) (%)	15,50
Total Harmonic Distortion in no-load DHT (%)	<2	Subtranscient time constant (T''d) (ms)	10
Total Harmonic Distortion, on linear load DHT (%)	<2	Quadra axis subtranscient reactance saturated (X''q) (%)	20,90
Wave form : NEMA=TIF	<50	Subtranscient time constant (T''q) (ms)	10
Wave form : CEI=FHT	<2	Zero sequence reactance unsaturated (Xo) (%)	0,90
Number of bearing	Single Bearing	Negative sequence reactance saturated (X2) (%)	18,26
Coupling	Direct	Armature time constant (Ta) (ms)	15
Voltage regulation at established rating (+/- %)	0,50	No load excitation current (io) (A)	0,85
Recovery time (Delta U = 20% transient) (ms)	500	Full load excitation current (ic) (A)	3,92
Indication of protection	IP 23	Full load excitation voltage (uc) (V)	67,10
Technology	Brushless	Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	571,36
		Transient dip (4/4 load) - PF : 0,8 AR (%)	17
		No load losses (W)	5158,09
		Heat rejection (W)	23478,1
			5
		Unbalanced load acceptance ratio (%)	70

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