V500UC2

Engine ref.	TAD1641GE
Alternator ref.	KH02450T
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	60 Hz
Voltage (V)	480/277
Standard Control Panel	APM403
Optional control panel	APM802
Optional Control Panel	M80
Optional control panel	NA

POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
480/277	500	625	454	568	752
440/254	500	625	454	568	820
220/127	500	625	454	568	1640
208/120	500	625	454	568	1735

DIMENSIONS COMPACT VERSION

Length (mm)	3470
Width (mm)	1500
Height (mm)	2048
Dry weight (kg)	3660
Tank capacity (L)	500

DIMENSIONS SOUNDPROOFED VERSION

Type soundproofing	M229
Length (mm)	5031
Width (mm)	1560
Height (mm)	2435
Dry weight (kg)	4870
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	85
Guaranteed acoustic power level (Lwa)	
Acoustic pressure level @7m in dB(A)	75

DESCRIPTIVE

- Electronic governor
- Mechanically welded chassis with antivibration suspension
- Main line circuit breaker
- Radiator for core temperature of 48/50°C max with mechanical fan
- Protective grille for fan and rotating parts (CE option)
- 9 dB(A) silencer supplied separately
- Charger DC starting battery with electrolyte
- 24 V charge alternator and starter
- Delivered with oil and coolant -30°C
- Manual for use and installation

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.

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ENGINE CHARACTERISTICS

GENERAL ENGINE DATA

Engine brand	VOLVO
Engine ref.	TAD1641GE
Air inlet system	Turbo
Cylinders configuration	L
Number of cylinders	6
Displacement (L)	16,12
Charge Air coolant	Air/Air DC
Bore (mm) x Stroke (mm)	144 x 165
Compression ratio	16.5 : 1
Speed (RPM)	1800
Pistons speed (m/s)	9,90
Maximum stand-by power at rated RPM (kW)	565
Frequency regulation, steady state (%)	+/- 0.25%
BMEP @ PRP 60 Hz (bar)	21,20
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (L)	60
Fan power (kW)	19
Fan air flow w/o restriction (m3/s)	9,80
Available restriction on air flow (mm H2O)	25
Type of coolant	Glycol-Ethylene

EMISSIONS

Emission PM (g/kWh)	0,11
Emission CO (g/kW.h)	0,69
Emission HC+NOx (g/kWh)	5,35
Emission HC (g/kW.h)	0,12

EXHAUST

Exhaust gas temperature @ ESP 60Hz (°C)	479
Exhaust gas flow @ ESP 60Hz (L/s)	1840
Max. exhaust back pressure (mm H2O)	1000

FUEL

Fuel consumption 100% ESP load (L/hr)	138
Fuel consumption 100% load (L/hr)	120,70
Fuel consumption 75% PRP load (L/h)	88,80
Fuel consumption 50% PRP load (L/h)	59,80
Maximum fuel pump flow (L/h)	190

OIL

Oil system capacity including filters (L)	48
Min. oil pressure (bar)	0,70
Max. oil pressure (bar)	6,50
Oil consumption 100% ESP 60Hz (L/h)	0,11
Oil sump capacity (L)	42

HEAT BALANCE

Heat rejection to exhaust (kW)	442
Radiated heat to ambiant (kW)	24
Heat rejection to coolant HT (kW)	231

AIR INTAKE

Max. intake restriction (mm H2O)	500
Intake air flow (L/s)	763

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator ref.	KH02450T
Number of Phase	Three phase
Power factor (Cos Phi)	0,80
Altitude (m)	0 à 1000
Overspeed (rpm)	2250
Number of pole	4
Capacity for maintaining short circuit at 3 In for 10 s	No
Insulation class	H
T° class (H/125°), continuous 40°C	H / 125°K
T° class (H/163°C), standby 27°C	H / 163°K
Total Harmonic Distortion in no-load DHT (%)	<2
AVR Regulation	Yes
Total Harmonic Distortion, on linear load DHT (%)	<2
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Number of bearing	Single Bearing
Coupling	Direct
Voltage regulation at established rating (+/- %)	0,50
Recovery time (Delta U = 20% transcient) (ms)	500
Indication of protection	IP 23
Technology	Brushless

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	625
Standby Rating 27°C (kVA)	700
Efficiencies 100% of load (%)	94,50
Air flow (m3/s)	1,10
Short circuit ratio (Kcc)	0,3950
Direct axis synchro reactance unsaturated (Xd) (%)	319
Quadra axis synchro reactance unsaturated (Xq) (%)	163
Open circuit time constant (T'do) (ms)	1930
Direct axis transcient reactance saturated (X'd) (%)	16,50
Short circuit transcient time constant (T'd) (ms)	100
Direct axis subtranscient reactance saturated (X"d) (%)	11,50
Subtranscient time constant (T"d) (ms)	10
Quadra axis subtranscient reactance saturated (X"q) (%)	15,30
Subtranscient time constant (T"q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	0,60
Negative sequence reactance saturated (X2) (%)	13,49
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0,99
Full load excitation current (ic) (A)	3,66
Full load excitation voltage (uc) (V)	62,70
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	1192,59
Transcient dip (4/4 load) - PF : 0,8 AR (%)	15
No load losses (W)	10094,55
Heat rejection (W)	28751,29
Unbalanced load acceptance ratio (%)	70

DIMENSIONS

Dimensions soundproofed version

Type soundproofing	M229
Length (mm)	5031
Width (mm)	1560
Height (mm)	2435
Dry weight (kg)	4870
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	85
Guaranteed acoustic power level (Lwa)	
Acoustic pressure level @7m in dB(A)	75

Dimensions DW soundproofed version

Type soundproofing	M229 DW
Length (mm)	5083
Width (mm)	1560
Height (mm)	2700
Dry weight (kg)	5590

Dimensions DW compact version

Type soundproofing	
Length (mm)	5083
Width (mm)	1560
Height (mm)	2308
Dry weight (kg)	3490
Tank capacity (L)	1770
Acoustic pressure level @1m in dB(A)	
Guaranteed acoustic power level (Lwa)	
Acoustic pressure level @7m in dB(A)	

Tank capacity (L)	1770
Acoustic pressure level @1m in dB(A)	85
Guaranteed acoustic power level (Lwa)	
Acoustic pressure level @7m in dB(A)	75

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CONTROL PANEL

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

APM802 dedicated to power plant management

The new APM802 command/control system is specifically designed for operating and monitoring power plants for markets including hospitals, data centres, banks, the oil and gas sector, industries, IPP, rental and mining.
This unit is available as standard on all generating sets from 275 Kva designed for coupling. It is optional on the rest of our range.
The Human Machine Interface, designed in collaboration with a company specialising in interface design, facilitates operations with a large 100% touch screen. The pre-configured system for power plant applications features a brand new customisation function which complies with the international standard IEC 61131-3. New communication functions (PLC and regulation), improve the high level of equipment availability in the installation.

Advantages:
Dedicated to power plant management.
Specially researched ergonomics.
High level of equipment availability.
Modularity and long service life guaranteed.
Making it easy to extend the installation

For more information, please refer to the sales documentation.

M80, transfer of information

The M80 is a dual-function control unit. It can be used as a basic terminal block for connecting a control box and as an instrument panel with a direct read facility, with displays giving a global view of your generating set's basic parameters.

Offers the following functions:

Engine parameters: tachometer, working hours counter, coolant temperature indicator, oil pressure indicator, emergency stop button, customer connection terminal block, CE.

Basic terminal block

The control unit can be used as a basic terminal block for connecting a control box.

Offers the following functions:

emergency stop button, customer connection terminal block, CE.