



DESCRIPTIVE

- Electronic governor
- Mechanically welded chassis with antivibration suspension
- Main line circuit breaker
- Radiator for wiring 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 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.

X650C2

Engine ref.	12V1600G10F-E
Alternator ref.	AT02880T
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	400/230
Standard Control Panel	TELYS
Optional control panel	APM802

POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
220 TRI	520	650	473	591	1706
415/240	520	650	473	591	904
400/230	520	650	473	591	938
380/220	520	650	473	591	988
240 TRI	520	650	473	591	1564
230 TRI	520	650	473	591	1632

DIMENSIONS COMPACT VERSION

Length (mm)	3470
Width (mm)	1630
Height (mm)	2075
Dry weight (kg)	4480
Tank capacity (L)	610

DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	M230
Length (mm)	5031
Width (mm)	1690
Height (mm)	2662
Dry weight (kg)	6070
Tank capacity (L)	610
Acoustic pressure level @1m in dB(A)	88
Sound power level guaranteed (Lwa)	108
Acoustic pressure level @7m in dB(A)	78



X650C2

ENGINE CHARACTERISTICS

GENERAL ENGINE DATA

Engine model	MTU
Engine ref.	12V1600G10F-E
Air inlet	Turbo
Cylinders arrangement	V
Number of cylinders	12
Displacement (C.I.)	21.04
Air coolant	Air/Air DC
Bore (mm) x Stroke (mm)	122 x 150
Compression ratio	17.5 : 1
Speed (RPM)	1500
Pistons speed (m/s)	7.50
Maximum stand-by power at rated RPM (kW)	576
Frequency regulation (%)	+/- 0.5%
BMEP (bar)	19.92
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (L)	100
Max water temperature (°C)	105
Outlet water temperature (°C)	95
Fan power (kW)	16.40
Fan air flow w/o restriction (m3/s)	12.60
Available restriction on air flow (mm Water Column)	13
Type of coolant	Glycol-Ethylene
Thermostat (°C)	83-95

EMISSIONS

Emission PM (g/kW.h)	
Emission CO (mg/Nm3)	<300
Emission HCNOx (g/kWh)	
Emission HC (g/kW.h)	

EXHAUST

Exhaust gas temperature (°C)	470
Exhaust gas flow (L/s)	1700
Max. exhaust back pressure (mm EC)	850

FUEL

Consumption @ 110% load (L/h)	138
Consumption @ 100% load (L/h)	125
Consumption @ 75% load (L/h)	94
Consumption @ 50% load (L/h)	64
Maximum fuel pump flow (L/h)	342

OIL

Oil capacity (L)	72.50
Min. oil pressure (bar)	4
Max. oil pressure (bar)	5
Oil consumption 100% load (L/h)	0.30
Carter oil capacity (L)	64

HEAT BALANCE

Heat rejection to exhaust (kW)	357
Radiated heat to ambient (kW)	24
Heat rejection to coolant (kW)	250+150

AIR INTAKE

Max. intake restriction (mm EC)	250
Intake air flow (L/s)	630



X650C2

ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator ref.	AT02880T
Number of Phase	Three phase
Power factor (Cos Phi)	0.80
Altitude (m)	0 to 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, continuous 40°C	H / 125°K
T° class, standby 27°C	H / 163°K
AVR Regulation	Yes
Total Harmonic Distortion in no-load DHT (%)	<1.5
Total Harmonic Distortion, on load DHT (%)	<2
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Number of bearing	1
Coupling	Direct
Voltage regulation at established rating (+/- %)	
Recovery time (Delta U = 20% transient) (ms)	500
Indication of protection	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	600
Standby Rating 27°C (kVA)	660
Efficiencies 100% of load (%)	94.50
Air flow (m3/s)	0.90
Short circuit ratio (Kcc)	0.37
Direct axis synchro reactance unsaturated (Xd) (%)	330
Quadra axis synchro reactance unsaturated (Xq) (%)	198
Open circuit time constant (T'do) (ms)	1997
Direct axis transient reactance saturated (X'd) (%)	16.50
Short circuit transient time constant (T'd) (ms)	100
Direct axis subtransient reactance saturated (X''d) (%)	11.40
Subtransient time constant (T''d) (ms)	10
Quadra axis subtransient reactance saturated (X''q) (%)	15
Subtransient time constant (T''q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	0.90
Negative sequence reactance saturated (X2) (%)	13.20
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.90
Full load excitation current (ic) (A)	3.70
Full load excitation voltage (uc) (V)	36
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	1258
Transient dip (4/4 load) - PF : 0,8 AR (%)	15
No load losses (W)	6780
Heat rejection (W)	27490
Unbalanced load acceptance ratio (%)	70

TELYS, ergonomic and user-friendly



The highly versatile TELYS control unit is complex yet accessible, thanks to the particular attention paid to optimising its ergonomics and ease of use. With its large display screen, buttons and scroll wheel, it places the accent on simplicity and communication.

The TELYS offers the following functions:

Electrical measurements: voltmeter, frequency meter, ammeter.

Engine parameters: working hours counter, oil pressure, coolant temperature, fuel level, engine speed, battery voltage.

Alarms and faults: oil pressure, coolant temperature, failure to start, overspeed, alternator min./max., battery voltage min./max., emergency stop, fuel level.

Ergonomics: wheel for navigating around the various menus.

Communication: remote control and operation software, USB connections, PC connection.

For more information on the product and its options, please refer to the sales documentation.

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.

This document is not contractual - The SDMO company reserves the right to modify any of the characteristics stated in this document without notice, in a constant effort to improve the quality of its products. *ISO 8528.