X2700

Engine ref.	20V4000G23F
Alternator ref.	LSA 51.2 VL95
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	400/230
Optional control panel	M80
Optional Control Panel	TELYS
Optional control panel	APM802

DESCRIPTIVE

- Electronic governor
- Mechanically welded chassis with antivibration suspension
- Air cooler for wiring temperature of 47/50°C with electric fan
- Exhaust compensators with flanges
- 24 V charge alternator and starter
- Delivered with oil
- Manual for use and installation

POWER

Voltage	ESP		PRP		DCC (*)		Standby Amps
	kWe	kVA	kWe	kVA	kWe	kVA	
415/240	2133	2666	1939	2424	1939	2424	3709
400/230	2133	2666	1939	2424	1939	2424	3848
380/220	2133	2666	1939	2424	1939	2424	4051

DIMENSIONS COMPACT VERSION

Length (mm)	4906
Width (mm)	1870
Height (mm)	2278
Dry weight (kg)	16010
Tank capacity (L)	0

DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	
Length (mm)	0
Width (mm)	0
Height (mm)	0
Dry weight (kg)	0
Tank capacity (L)	0
Acoustic pressure level @1m in dB(A)	0
Sound power level guaranteed (Lwa)	0
Acoustic pressure level @7m in dB(A)	0

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.
*DCC : Data Center Continuous Power ratings apply to Data Center installations where a reliable utility power is available and comply with Uptime institute Tier III and IV requirements. At constant or varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO 8528-1, ISO 3046-1, BS 5514 AND AS 2789. Average load factor : ≤ 100%.

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 UNCERTAINLY

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 model	MTU
Engine ref.	20V4000G23F
Air inlet	Turbo
Cylinders arrangement	V
Number of cylinders	20
Displacement (C.I.)	95.33
Air coolant	Air/Water DC
Bore (mm) x Stroke (mm)	170 x 210
Compression ratio	16,4
Speed (RPM)	1500
Pistons speed (m/s)	10.50
Maximum stand-by power at rated RPM (kW)	2420
Frequency regulation (%)	+/- 0.5%
BMEP (bar)	18.46
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (L)	760
Max water temperature (°C)	104
Outlet water temperature (°C)	100
Fan power (kW)	
Fan air flow w/o restriction (m3/s)	
Available restriction on air flow (mm Water Column)	
Type of coolant	Glycol-Ethylene
Thermostat (°C)	79/92

EMISSIONS

Emission PM (mg/Nm3)	<50
Emission CO (mg/Nm3)	<300
Emission HCNOx (g/kWh)	
Emission HC (mg/Nm3)	<150

EXHAUST

Exhaust gas temperature (°C)	580
Exhaust gas flow (L/s)	6500
Max. exhaust back pressure (mm EC)	500

FUEL

Consumption @ 110% load (L/h)	543
Consumption @ 100% load (L/h)	491
Consumption @ 75% load (L/h)	374
Consumption @ 50% load (L/h)	270
Maximum fuel pump flow (L/h)	1620

OIL

Oil capacity (L)	390
Min. oil pressure (bar)	4.90
Max. oil pressure (bar)	7.70
Oil consumption 100% load (L/h)	1.50
Carter oil capacity (L)	340

HEAT BALANCE

Heat rejection to exhaust (kW)	1482
Radiated heat to ambiant (kW)	105
Haet rejection to coolant (kW)	860

AIR INTAKE

Max. intake restriction (mm EC)	150
Intake air flow (L/s)	2400

4/13/2015

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator ref.	LSA 51.2 VL95
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	Yes
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 (%)	<3.5
Total Harmonic Distortion, on load DHT (%)	<3.5
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% transcient) (ms)	
Indication of protection	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	2500
Standby Rating 27°C (kVA)	2750
Efficiencies 100% of load (%)	96.40
Air flow (m3/s)	2.50
Short circuit ratio (Kcc)	0.39
Direct axis synchro reactance unsaturated (Xd) (%)	311
Quadra axis synchro reactance unsaturated (Xq) (%)	187
Open circuit time constant (T'do) (ms)	3410
Direct axis transcient reactance saturated (X'd) (%)	23.10
Short circuit transcient time constant (T'd) (ms)	299
Direct axis subtranscient reactance saturated (X"d) (%)	12.10
Subtranscient time constant (T"d) (ms)	26
Quadra axis subtranscient reactance saturated (X"q) (%)	15
Subtranscient time constant (T"q) (ms)	24
Zero sequence reactance unsaturated (Xo) (%)	2.10
Negative sequence reactance saturated (X2) (%)	13.60
Armature time constant (Ta) (ms)	49
No load excitation current (io) (A)	1.30
Full load excitation current (ic) (A)	4.70
Full load excitation voltage (uc) (V)	50
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	5000
Transcient dip (4/4 load) - PF : 0,8 AR (%)	10.90
No load losses (W)	19300
Heat rejection (W)	75000
Unbalanced load acceptance ratio (%)	8

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CONTROL PANEL

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.

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.