D400U

Engine ref.	P158LE
Alternator ref.	AT01741T
Performance class	G3

GENERAL CHARACTERISTICS

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

POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
480/277	400	500	364	455	601
208/120	400	500	364	455	1388

DIMENSIONS COMPACT VERSION

Length (mm)	3470
Width (mm)	1500
Height (mm)	1829
Dry weight (kg)	2910
Tank capacity (L)	500

DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	M229
Length (mm)	5031
Width (mm)	1560
Height (mm)	2435
Dry weight (kg)	4090
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	89
Sound power level guaranteed (Lwa)	0
Acoustic pressure level @7m in dB(A)	79

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 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	DOOSAN
Engine ref.	P158LE
Air inlet	Turbo
Cylinders arrangement	V
Number of cylinders	8
Displacement (C.I.)	14.62
Air coolant	Air/Air DC
Bore (mm) x Stroke (mm)	128 x 142
Compression ratio	15 : 1
Speed (RPM)	1800
Pistons speed (m/s)	8.52
Maximum stand-by power at rated RPM (kW)	458
Frequency regulation (%)	+/- 0.5%
BMEP (bar)	18.30
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (L)	80.50
Max water temperature (°C)	103
Outlet water temperature (°C)	
Fan power (kW)	24
Fan air flow w/o restriction (m3/s)	11
Available restriction on air flow (mm Water Column)	127
Type of coolant	Glycol-Ethylene
Thermostat (°C)	71 - 85

EMISSIONS

Emission PM (g/kWh)	0.150
Emission CO (g/kW.h)	0.500
Emission HCNOx (g/kWh)	
Emission HC (g/kW.h)	0.100

EXHAUST

Exhaust gas temperature (°C)	606
Exhaust gas flow (L/s)	1521
Max. exhaust back pressure (mm EC)	600

FUEL

Fuel consumption 110% load (L/hr)	115.70
Fuel consumption 100% load (L/hr)	102.50
Fuel consumption 75% (L/h)	74.70
Fuel consumption 50% (L/h)	50.60
Maximum fuel pump flow (L/h)	320

OIL

Oil capacity (L)	31
Min. oil pressure (bar)	0.50
Max. oil pressure (bar)	10
Oil consumption 100% load (L/h)	0.1030
Carter oil capacity (L)	21

HEAT BALANCE

Heat rejection to exhaust (kW)	427
Radiated heat to ambiant (kW)	58.90
Haet rejection to coolant (kW)	244.8

AIR INTAKE

Max. intake restriction (mm EC)	635
Intake air flow (L/s)	518

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator ref.	AT01741T
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% transcient) (ms)	500
Indication of protection	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	495
Standby Rating 27°C (kVA)	545
Efficiencies 100% of load (%)	93.30
Air flow (m3/s)	1.10
Short circuit ratio (Kcc)	0.29
Direct axis synchro reactance unsaturated (Xd) (%)	405
Quadra axis synchro reactance unsaturated (Xq) (%)	243
Open circuit time constant (T'do) (ms)	1771
Direct axis transcient reactance saturated (X'd) (%)	22.80
Short circuit transcient time constant (T'd) (ms)	100
Direct axis subtranscient reactance saturated (X"d) (%)	16
Subtranscient time constant (T"d) (ms)	10
Quadra axis subtranscient reactance saturated (X"q) (%)	21.60
Subtranscient time constant (T"q) (ms)	
Zero sequence reactance unsaturated (Xo) (%)	1
Negative sequence reactance saturated (X2) (%)	18.80
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.90
Full load excitation current (ic) (A)	4
Full load excitation voltage (uc) (V)	40
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	973
Transcient dip (4/4 load) - PF : 0,8 AR (%)	18.50
No load losses (W)	8150
Heat rejection (W)	28180
Unbalanced load acceptance ratio (%)	70

DIMENSIONS

Containment DW

Commercial reference of the enclosure	M229 DW
Length (mm)	5083
Width (mm)	1560
Height (mm)	2700
Dry weight (kg)	4750
Tank capacity (L)	1770
Acoustic pressure level @1m in dB(A)	89
Sound power level guaranteed (Lwa)	0
Acoustic pressure level @7m in dB(A)	79

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CONTROL PANEL

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.