Diesel Generator set 2200 series Engine P400-3

350KVA – 400 kVA 50 Hz



Description

This FG Wilson commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary Standby, Prime Power, and Continuous duty applications.

Features

FG Wilson engine - Rugged 4- cycle industrial diesel delivers reliable power, fuel optimized and fast response to load changes.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Cooling system – Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Control system - Standard DSE7410 electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, protection, output metering, auto-shutdown.

Enclosures - Optional weather-protective and sound-attenuated enclosures are available.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

circuit breaker - Optional 3 or 4 pole motorized circuit breaker available.

ISO 8528-5 – Refer to factory for site and configuration specific transient performance classification

Generator set specifications

Output Ratings

	Prime	Standby
400/230V, 50Hz	350 KVA	400 KVA
	280 KW	320 KW

Performance class	Genset models have been tested in accordance with ISO 8528-5.
Voltage regulation, no load to full load	± 1.0 %
Electromagnetic Compatibility Performance	Fuel optimized

Engine specifications

Ratings and Performance Data

Engine Make		Perkins
Engine Model		2206A-E13TAG2
Alternator Make		FG Wilson
Alternator Model		FGL50070
Control Panel		DSE4520
Base Frame		Heavy Duty Fabricated Steel
Circuit Breaker Type		630A 3P MCCB
Frequency		50 HZ
Engine Speed: RPM	rpm	1500
Fuel Tank Capacity:	liters (US gal)	888 (234.58)

Engine Technical Data

No. of Cylinders		6
Alignment		IN LINE
Cycle		4 STROKE
Bore	mm (in)	130 (5.1)
Stroke	mm (in)	157 (6.2)
Induction		TURBOCHARGED AIR TO AIR CHARGE COOLED
Cooling Method		WATER
Governing Type		ELECTRONIC
Governing Class		ISO 8528 G2
Compression Ratio		16.3:1
Displacement	L (cu. in)	12.5 (762.8)
Moment of Inertia:	kg m² (lb/in²)	2.77 (9465)
Voltage		24
Ground		Negative
Battery Charger		70
Engine Weight Dry	kg (lb)	1301 (2868)
Engine Weight Wet	kg (lb)	1351 (2978)

Engine Performance Data

Engine Speed	rpm	1500
Gross Engine Power Prime	kW (hp)	324.2 (435)
Gross Engine Power Standby	kW (hp)	368.4 (494)
BMEP Prime	kPa (psi)	2075 (300.9)
BMEP Standby	kPa (psi)	2357 (341.9)

Fuel system

Injection system ....MEUI
Injector type ....MEUI
Governor type .... electronic
Governing conforms to.. .... ISO 8528-5 Class G2
Injector pressure..... ....207 MPa

Fuel lift pump

Lift pump type .... gear driven
Lift pump delivery - 1500 rev/min ....480 litres/min
Lift pump delivery - 100 rev/min .. ..600 litres/min
Lift pump delivery pressure.. ....621 kPa
Maximum suction head at pump inlet ....3 m
Maximum static pressure head.. .. .. 4 m
Maximum fuel inlet temperature.. .... 55°C
Fuel filter spacing primary..... .... 10 microns
Fuel filter spacing secondary .. ..2 microns

Fuel Filter	Replaceable Element			
Recommendation fuel	Class A2 Diesel			
Ful Consumption at	110%	100%	75%	50%
50 Hz Prime l/hr.	79	69.5	52.9	36.
50 Hz standby l/hr.	-	79	60	40.9

Cooling system

Total system capacity .... 51,4 litres
Maximum top tank temperature .. .. 104 ° C
Temperature rise across engine.. ....10 ° C
Maximum pressure in engine cooling circuit .... 70 kPa
Maximum permissible external system resistance.. .... 30 kPa
Maximum static pressure head on pump.... .... 30 kPa

Radiator

Face area ....1..238 mm²
Number of rows and materials ....1 row, Aluminium
Matrix density and material .. ..12 fins per inch, Aluminium
Width of matrix.... .... 1048 mm
Height of matrix.. .... 1100 mm
Weight of radiator (dry) .... 132 kg
Pressure cap setting (minimum) .... 70 kPa

Charge cooler

Face area ....1..006 mm²
Number of rows and materials ....1 row, Aluminum
Matrix density and material .. ..12 fins per inch, Aluminum
Width of matrix.... ....915 mm
Height of matrix.. .... 1100 mm

Fan

Diameter.. .... 927 mm
Drive ratio 0,92:1
Number of blades.... 9
Material..... ....Composite
Type.. .... Pusher
Cooling fan air flow @1500 rev/min .... 654 m³/min
Cooling fan air flow @1800 rev/min.... .... 788 m³/min

		50
Cooling System Capacity	L (US gal)	45.2 (11.9)
Water Pump Type:		Centrifugal
Heat Rejected to Water & Lube Oil: Prime	kW (Btu/min)	113.5 (6455)
Heat Rejected to Water & Lube Oil: Standby	kW (Btu/min)	128.5 (7308)
Heat Radiation to Room*: Prime	kW (Btu/min)	44.7 (2542)
Heat Radiation to Room*: Standby	kW (Btu/min)	55.7 (3168)
Radiator Fan Load:	kW (hp)	14 (18.8)
Radiator Cooling Airflow:	m^3/min (cfm)	398.4 (14069)
External Restriction to Cooling Airflow:	Pa (in H2O)	125 (0.5)

*: Heat radiated from engine and Alternator
Designed to operate in ambient conditions up to 50°C (122°F).

Air System (at 50 Hz)

Air Filter Type		Paper Element
Combustion Air flow Prime	m^3/min	21.3
Combustion Air Flow Standby	m^3/min	23.6
Max. Combustion Air Intake Restriction	kPa	6.4

Lubricating System

Oil Filter Type:		Eco, Full flow
Total Oil Capacity:	l (US gal)	40 (10.6)
Oil Pan Capacity:	l (US gal)	38 (10)
Oil Type:		API CH4 SAE15W-40
Oil Cooling Method:		WATER

Exhaust system		
Maximum Allowable Back Pressure:	kPa (in Hg)	10 (3)
Exhaust Gas Flow: Prime	m^3/min (cfm)	56.6 (1999)
Exhaust Gas Flow: Standby	m^3/min (cfm)	64.8 (2288)
Exhaust Gas Temperature: Prime	°C (°F)	573 (1063)
Exhaust Gas Temperature: Standby	°C (°F)	630 (1166)

JMG INTL

Alternator Physical Data

No. Of bearings	1
Insulation Class	H
Winding Pitch	2/3
Winding Code	6S
Wiers	6
IP	IP23
Excitation System	Shunt
AVR Model	R150

Alternator Operating Data

Overseed	rpm	2250
Voltage Regulation (steady State)	%	± 1.0
Wave Form NEMA= TIF	%	50
Wave form=THF	%	2
Total Harmonic content LL/LN	%	2.5
Radio Interference		EN61000-6
Radiant Heat	KW	23.5

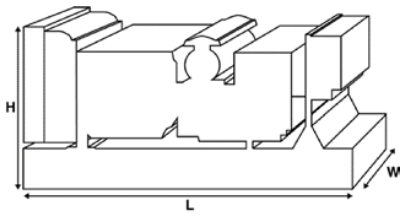
Alternator Performance Data

Voltage Code		415/240V	400/230V	380/220V
Motor Starting capability*	KVA	710	639	545
Short Circuit capacity**	%	270	270	270
Reactances	Xd	2.71	2.91	3.227
	X'd	0.129	0.139	0.154
	X''d	0.111	0.111	0.123

*Based on 30% voltage dip at 0.4 power factor

** With optional independent excitation system (PMG / AUX winding)

Dimensions (Open Set)



Length mm	3800
Width mm	1131
Height mm	2156

Control Panel Specification Data

DSE 4520



Key Features

- Load unbalanced alarm
- Configurable for use as an auto start and AMF control module
- J1939-75 support and CAN alarm ignore functon
- Alternator frequency & CAN speed sensing in one variant
- Largest back-lit icon display in its class
- Heated display option
- Real time clock provides accurate event logging
- Fully configurable via the fascia or PC using USB communication
- Extremely efficient power save mode
- 3 phase generator sensing
- 3 phase mains (utility) sensing
- Compatible with 600 V ph to ph nominal systems
- Generator/load power monitoring (kW, kVA, kVAr, pf)
- Accumulated power monitoring (kW h, kVA h, kVAr h)
- Generator overload protection (kW)
- Generator/load current monitoring and protection
- Fuel and start outputs (configurable when using CAN)
- 4 configurable DC outputs

Key Benefits

- Automatically transfers between main (utility) and generator
- Hour's counter provides accurate information for monitoring and maintenance periods
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored simultaneously which are clearly displayed on the large back-lit icon display.
- The module can be configured to suit a wide range of applications
- Uses DSE Configuration
- Suite PC Software for simplified configuration
- Compatible with a wide range of CAN engines including Tier 4
- License-free PC software
- IP65 rating (with optional gasket) offers increased resistance to water ingress

Specifications

- continuous voltage rating 8V to 35V continuous
- Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries
- Maximum operating current260 mA at 12 V, 130 mA at 24
- charge fail 0 V to 35 V
- output A (fuel)10A, 5A at continuous supply voltage
- output B (start)10A, 5 A at continuous supply voltage
- output C, D, E & F 2A at supply stage.

Codes or

standards compliance may not be available with all model configurations – consult factory for availability.

ISO 8528	This generator set has been designed to comply with ISO 8528 standards.
ISO 3046	This generator set performance and test methods comply with ISO 3046
BS 5000	This generator set comply with the British standards used for engine and generators
IEC 60034	This generator performance complies with the international standard for rotating electrical machines