

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	FG100	
Base Frame	Heavy Duty Fabricated Steel	
Circuit Breaker Type	3 Pole 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 m ² (lb/in ²)	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 systemMEUI
 Injector typeMEUI
 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/min480 litres/min
 Lift pump delivery - 100 rev/min .. .600 litres/min
 Lift pump delivery pressure.....621 kPa
 Maximum suction head at pump inlet3 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 area1.238 mm²
 Number of rows and materials1 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 area1.006 mm²
 Number of rows and materials1 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 ratio0,92:1
 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 H ₂ O)	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)

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

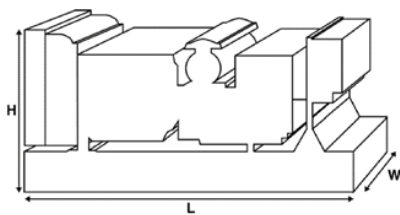
Alternator Performance Data

Voltage Code		415/240V	400/230V	380/220V
Motor Starting capability*	KVA	710	639	545
Short Circuit capacity**	%	270	270	270
Reactances	X _d	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 7410



Key Features

- Configurable power-up mode
- MPU fail delay
- Enhanced graphical user interface
- Drag & drop advanced PLC editor
- MSC ID within PLC GenComm override
- 4-Line back-lit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- 11 configurable inputs
- 8 configurable outputs
- Flexible sensor inputs
- 3 Configurable timers and alarms
- Configurable event log (250)
- Integral PLC editor
- CAN and Magnetic Pick-up/Alt. sensing
- Fuel usage monitor and low fuel alarms
- kW protection
- Reverse power (kW) protection
- Power monitoring (kW.h, kV Ar, kV A h, kV Ar h)
- Fully configurable via DSE Configuration Suite PC software

Key Benefits

- 132 x 64-pixel ratio display for clarity
- Real-time clock provides accurate event logging
- Set maintenance periods can be configured to maintain optimum engine performance
- Built-in-in-ethernet communications provides advanced remote monitoring
- Modules can be integrated into building management systems (BMS) using MODBUS
- increased input and output expansion capability via DSENet
- IP65 rating (with supplied gasket) offers increased resistance to water ingress
- Data logging to assist with fault finding
- PLC editor allows user configurable functions to meet specific application requirements
- License-free PC software

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 current 260 mA at 12 V, 130 mA at 24
- charge fail 0 V to 35 V
- output A (fuel) 15A DC at supply voltage
- output B (start) 15A DC at supply voltage
- output C&D 8A DC at supply voltage
- Output E to J 2 A DC at supply voltage
- BUS 15V to 333V AC L-N
- MPU ± 0.5 to 70V

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