Diesel Generator set 1500 series Engine P275-5

250KVA – 275 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	250 KVA	275 KVA
	200 KW	220 KW

Performance class	Genset models have been tested in accordance with ISO 8528-5.
Voltage regulation, no load to full load	± 0.5 %
Electromagnetic Compatibility Performance	Fuel optimized

Engine specifications

Ratings and Performance Data

Engine Make		Perkins
Engine Model		1506A-E88TAG3
Alternator Make		Leroy Somer
Alternator Model		LL5114H
Control Panel		DSE7410
Base Frame		Heavy Duty Fabricated Steel
Circuit Breaker Type		400A, 3 Pole MCCB
Frequency		50 HZ
Engine Speed: RPM	rpm	1500
Fuel Tank Capacity:	liters (US gal)	528 (139.48)

Engine Technical Data

No. of Cylinders		6
Alignment		IN LINE
Cycle		4 STROKE
Bore	mm (in)	105 (4.1)
Stroke	mm (in)	135 (5.3)
Induction		TURBOCHARGED AIR TO AIR CHARGE COOLED
Cooling Method		WATER
Governing Type		ELECTRONIC
Governing Class		ISO 8528 G2
Compression Ratio		16.0:1
Displacement	L (cu. in)	7 (427.8)
Moment of Inertia:	kg m² (lb/in²)	1.26 (4306)
Voltage		12
Ground		Negative
Battery Charger		85
Engine Weight Dry	kg (lb)	788 (1737)
Engine Weight Wet	kg (lb)	822 (1812)

Engine Performance Data

Engine Speed	rpm	1500
Gross Engine Power Prime	kW (hp)	236 (316)
Gross Engine Power Standby	kW (hp)	258 (346)
BMEP Prime	kPa (psi)	2144 (310.9)
BMEP Standby	kPa (psi)	2344 (339.9)

Fuel system

Recommended fuel to conform to BS 2869 1998 CLASS A2 or BSEN590.

Injection system ... Direct
Injector type... Hydraulically Actuated Electronically Controlled Unit Injector
Governor type ... Electronic
Injector pressure ... 185 MPa
Lift pump type ... Gear
Lift pump fuel delivery @1500 rpm .. ... 38 litres/hour
Lift pump delivery pressure... 140-655 kPa
Maximum suction head at pump inlet ... 60.9 kPa
Maximum static pressure head. ... . 4 m
Maximum fuel inlet temperature. ... 79° C
Fuel filter spacing.. ... 4 Microns
olerance on fuel consumption .. ... ± 5%

Fuel Filter	Replaceable Element			
Recommendation fuel	Class A2 Diesel			
Ful Consumption at	110%	100%	75%	50%
50 Hz Prime l/hr.	59.2	53.8	40.9	29.3
50 Hz standby l/hr.	-	59.2	44.7	31.5

Cooling system

Total coolant capacity.. ... .29.6 litres
Engine ... 13.9 litres
Radiator .. ... 12.6 litres
Pipes and hoses . ... 3.08 litres
Maximum top tank temperature .. ... .107° C
Maximum static pressure head on pump. ... ..N/A kPa
Thermostat operating range ... 87 - 98° C
Coolant flow, against 30 kPa restriction @1500 rpm ... .140 litres/min
Coolant flow, against 30 kPa restriction @1800 rpm ... .190 litres/min
Maximum temperature rise across the engine ... .N/A° C

Radiator

Radiator face area... 0.49 m²
Number of rows and material 4/Aluminium
Fins per inch and material ... .10 FPI
Pressure cap setting (minimum)... 110 kPa

Charge cooler

Face area ... .0.26 m²
Number of rows and material 2/Aluminium
Fins per inch and material ... 10 FPI

Fan

Diameter.. ... 813 mm
Drive ratio 1:1
Number of blades.... 9
Material..... Plastic
Pusher/ Puller.... Pusher
Air flow @1500 rpm.. ... 370 m³/min
Air flow @1800 rpm.. ... 482 m³/min

		50
Cooling System Capacity	L (US gal)	30.7 (8.1)
Water Pump Type:		Centrifugal
Heat Rejected to Water & Lube Oil: Prime	kW (Btu/min)	110 (6256)
Heat Rejected to Water & Lube Oil: Standby	kW (Btu/min)	112 (6369)
Heat Radiation to Room*: Prime	kW (Btu/min)	32.5 (1848)
Heat Radiation to Room*: Standby	kW (Btu/min)	34.3 (1951)
Radiator Fan Load:	kW (hp)	7.7 (10.3)
Radiator Cooling Airflow:	m^3/min (cfm)	329.1 (11624)
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	14.1
Combustion Air Flow Standby	m^3/min	15
Max. Combustion Air Intake Restriction	kPa	6.2

Lubricating System

Oil Filter Type:		Spin-on, Full flow
Total Oil Capacity:	l (US gal)	39 (10.3)
Oil Pan Capacity:	l (US gal)	36 (9.5)
Oil Type:		API CI-4 0W-30
Oil Cooling Method:		WATER

Exhaust system		
Maximum Allowable Back Pressure:	kPa (in Hg)	10 (3)
Exhaust Gas Flow: Prime	m^3/min (cfm)	37.5 (1324)
Exhaust Gas Flow: Standby	m^3/min (cfm)	40.4 (1427)
Exhaust Gas Temperature: Prime	°C (°F)	537 (999)
Exhaust Gas Temperature: Standby	°C (°F)	558 (1036)

Alternator Physical Data

No. Of bearings	1
Insulation Class	H
Winding Pitch	2/3
Winding Code	6
Wiers	12
IP	IP23
Excitation System	Shunt
AVR Model	R250

Alternator Operating Data

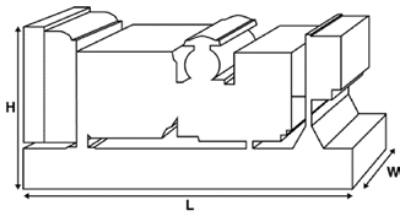
Overseed	rpm	2250
Voltage Regulation (steady State)	%	± 0.5
Wave Form NEMA= TIF	%	50
Wave form=THF	%	2
Total Harmonic content LL/LN	%	2
Radio Interference		EN61000-6
Radiant Heat	KW	19.3

Alternator Performance Data

Voltage Code		415/240V	400/230V	380/220V
Motor Starting capability*	KVA	563	532	491
Short Circuit capacity**	%	300	300	300
Reactances	Xd	3.823	4.115	4.377
	X'd	0.265	0.285	0.303
	X''d	0.169	0.169	0.18

*Based on 30% voltage dip at 0.4 power factor
** With optional independent excitation system (PMG / AUX winding)

Dimensions (Open Set)



Length mm	2662
Width mm	1071
Height mm	1818

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 current260 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