Diesel Generator set 4012 series Engine P1375-1

1250KVA – 1375KVA 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	1250 KVA	1375 KVA
	1000 KW	1100 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	4012-46TWG2A
Alternator Make	Leroy Somer
Alternator Model	LL8224H
Control Panel	DSE7410
Base Frame	Heavy Duty Fabricated Steel
Circuit Breaker Type	2000A, 3P
Frequency	50 Hz
Engine Speed: RPM rpm	1500
Fuel Tank Capacity: liters (US gal)	N/A

Engine Technical Data

No. of Cylinders	12
Alignment	Vee
Cycle	4
Bore mm (in)	160 (6.3)
Stroke mm (in)	190 (7.5)
Induction	TURBOCHARGED
Cooling Method	WATER
Governing Type	ELECTRONIC
Governing Class	ISO 8528 G3
Compression Ratio	13.0:1
Displacement L (cu. in)	45.8 (2797.5)
Moment of Inertia: kg m² (lb/in²)	19.3 (65951)
Voltage	24
Ground	Negative
Battery Charger	40
Engine Weight Dry kg (lb)	4440 (9788)
Engine Weight Wet kg (lb)	4604 (10150)

Engine Performance Data

Engine Speed	rpm	1500
Gross Engine Power Prime	kW (hp)	1108 (1486)
Gross Engine Power Standby	kW (hp)	1219 (1635)
BMEP Prime	kPa (psi)	1933 (280.4)
BMEP Standby	kPa (psi)	2127 (308.5)

Fuel system

Type of injection system ... ... Direct injection
Fuel injection pump ... ... Combined unit injector
Fuel injector... ... ... Combined unit injector
Fuel injector opening pressure... ... ...23.4MPa
Fuel lift pump type. ... ... …Gerotor
4012-46TWG2A… … … … … … ... ... .1020 liters/hour
Heat retained in fuel to tank... ... ... .8.5 kW
Temperature of fuel at lift pump to be less than. ... ... .58 °C
Fuel lift pump pressure. ... ...300 kPa
Fuel lift pump maximum suction head... ... ...24.5Kpa
Fuel filter spacing... ... ...10 microns
Governor type ... ... Electronic
Static injection timing. ... ... See engine number plate
Tolerance on fuel consumption. ... ... to ISO 7528-1 1993

Fuel Filter	Replaceable Element				
Recommendation fuel	Class A2 Diesel				
Ful Consumption at	110%	100%	75%	50%
50 Hz Prime l/hr.	284.9	258	197	145
50 Hz standby l/hr.	-	284.9	214.4	15.7

Cooling system

Recommended coolant: 50% inhibited ethylene glycol or 50% inhibited propylene glycol and 50% clean fresh water. For combined heat and power systems and where there is no likelihood of ambient temperature below 10 °C, then clean ‘soft’ water may be used, treated with 1% by volume of Perkins inhibitor in the cooling system.
For details of recommended coolant specifications, refer to the Operation and Maintenance Manual for this engine model. Nominal jacket water pressure in crank case... ... ... 170 kPa
Maximum top tank temperature (standby)... ... ... .98 °C
Maximum static pressure head on pump. ... ... .70KPa

		50 Hz
Cooling System Capacity	L (US gal)	208 (54.9)
Water Pump Type:		Centrifugal
Heat Rejected to Water & Lube Oil: Prime	kW (Btu/min)	372 (21155)
Heat Rejected to Water & Lube Oil: Standby	kW (Btu/min)	401 (22804)
Heat Radiation to Room*: Prime	kW (Btu/min)	140.3 (7979)
Heat Radiation to Room*: Standby	kW (Btu/min)	154.3 (8775)
Radiator Fan Load:	kW (hp)	38 (51)
Radiator Cooling Airflow:	m³/min (cfm)	1350 (47675)
External Restriction to Cooling	Pa (in H2O)	250 (1)

*: Heat radiated from engine and Alternator

Air System (at 50 Hz)

Air Filter Type		Replaceable Element
Combustion Air flow Prime	m³/min	102
Combustion Air Flow Standby	m³/min	109
Max. Combustion Air Intake Restriction	kPa	4

Lubricating System

Oil Filter Type:		Spin-On, Full Flow
Total Oil Capacity:	l (US gal)	177 (46.8)
Oil Pan Capacity:	l (US gal)	159 (42)
Oil Type:		API CH4 15W-40
Oil Cooling Method:		WATER

Exhaust system		
Maximum Allowable Back Pressure:	kPa (in Hg)	5 (1.5)
Exhaust Gas Flow: Prime	m³/min (cfm)	230 (8122)
Exhaust Gas Flow: Standby	m³/min (cfm)	230 (8122)
Exhaust Gas Temperature: Prime	°C (°F)	422 (792)
Exhaust Gas Temperature: Standby	°C (°F)	422 (792)

Alternator Physical Data

No. Of bearings	1
Insulation Class	H
Winding Pitch	2/3
Winding Code	6S
Wiers	6
IP	IP23
Excitation System	AREP
AVR Model	R450M/D350

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	%	3.5
Radio Interference		EN61000-6
Radiant Heat	KW	65.3

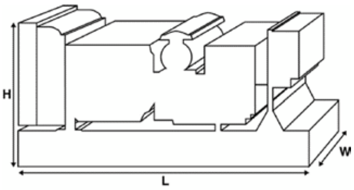
Alternator Performance Data

Voltage Code		415/240V	400/230V	380/220V
Motor Starting capability*	KVA	3093	2883	2613
Short Circuit capacity**	%	300	300	300
Reactances	Xd	3.56	3.84	4.11
	X’d	0.25	0.27	0.206
	X’’d	0.148	0.148	0.164

*Based on 30% voltage dip at 0.4 power factor

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

Dimensions (Open Set)



Length mm	**4788**
Width mm	**1895**
Height mm	**2440**

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