

LIQUID COOLED DIESEL ENGINE GENERATOR SET

Model	HZ	STANDBY
		120°C RISE
SPD-600-60 HERTZ	60	60



All generator sets are USA prototype built and thoroughly tested. Production models are USA factory built and 100% load tested.



UL2200, UL1446, UL508, UL142, UL498



NFPA 110, 99, 70, 37

All generator sets meet NFPA-110 Level 1, when equipped with the necessary accessories and installed per NFPA standards.



NEC 700, 701, 702, 708



NEMA ICS10, MG1, ICS6, AB1



ANSI C62.41, 27, 59, 32, 480, 40Q, 81U, 360-05



ASCE 7-22

All generator sets meet 200 MPH rating.



EPA 40CFR Part 60, 1048, 1054, 1065, 1068

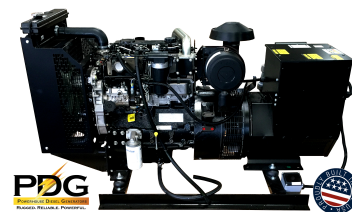
GENERATOR RATINGS

GENERATOR MODEL	VOLTAGE		PH	HZ	120°C RISE STANDBY RATING		POWER LEAD CONNECTIONS
	L-N	L-L			KW/KVA	AMP	
SPD-600-1-1	120	240	1	60	60/60	250	4 LEAD DEDICATED 1 PH
SPD-600-3-2	120	208	3	60	60/75	208	12 LEAD LOW WYE
SPD-600-3-3	120	240	3	60	60/75	181	12 LEAD HIGH DELTA
SPD-600-3-4	277	480	3	60	60/75	90	12 LEAD HIGH WYE
SPD-600-3-5	127	220	3	60	60/75	197	12 LEAD LOW WYE
SPD-600-3-16	346	600	3	60	60/75	72	4 LEAD DEDICATED 3 PH

RATINGS: All single phase gen-sets are dedicated 4 lead windings, rated at unity (1.0) power factor. All three phase gen-sets are 12 lead windings, rated at .8 power factor. 120° C "STANDBY RATINGS" are strictly for gen-sets that are used for back-up emergency power to a failed normal utility power source. This standby rating allows varying loads, with no overload capability, for the entire duration of utility power outage. All gen-set power ratings are based on temperature rise measured by resistance method as defined by MIL-STD 705C and IEEE STD 115, METHOD 6.4.4. All generators have class H (180°C) insulation system on both rotor and stator windings. All factory tests and KW/KVA charts shown above are based 120°C (standby) R/R winding temperature, within a maximum 40°C ambient condition. Generators operated at standby power ratings must not exceed the temperature rise limitation for class H insulation system, as specified in NEMA MG1-22.40. Specifications & ratings are subject to change without prior notice.

60 HZ MODEL

SPD-600



"OPEN" GEN-SET

There is no enclosure, so gen-set must be placed within a weather protected area, uninhabited by humans or animals, with proper ventilation. Silencer not supplied, as installation requirements are not known. However, this item is available as optional equipment.



"LEVEL 2" HOUSED GEN-SET

Full aluminum weather protection and superior sound attenuation for specific low noise applications. Critical grade muffler is standard.

APPLICATION AND ENGINEERING DATA FOR MODEL SPD-600-60 HZ

GENERATOR SPECIFICATIONS

Manufacturer..... Stamford Electric Generators
 Model & Type..... UCI224F-06, 4 Pole, 4 Lead, Single Phase
 UCI224F-311, 4 Pole, 12 Lead re-connectable, Three Phase
 UCI224E-17, 4 Pole, 6 lead, 600V, Three Phase
 Exciter..... Brushless, shunt excited
 Voltage Regulator..... Solid State, HZ/Volts
 Voltage Regulation..... ½%, No load to full load
 Frequency..... 60 HZ
 Frequency Regulation..... ± ½% (½ cycle, no load to full load)
 Unbalanced Load Capability..... 100% of standby amps
 Total Stator and Load Insulation..... Class H, 180°C
 Temperature Rise..... 120°C R/R, standby rating @ 40°C amb.
 1 Ø Motor Starting @ 30% Voltage Dip (240V)..... 168 kVA
 3 Ø Motor Starting @ 30% Voltage Dip (208-240V) 190 kVA
 3 Ø Motor Starting @ 30% Voltage Dip (480V)..... 260 kVA
 3 Ø Motor Starting @ 30% Voltage Dip (600V)..... 290 kVA
 Bearing..... 1, Pre-lubed and sealed
 Coupling..... Direct flexible disc.
 Total Harmonic Distortion..... Max 3 | % (MIL-STD705B)
 Telephone Interference Factor..... Max 50 (NEMA MG1-22)
 Deviation Factor..... Max 5% (MIL-STD 405B)

GENERATOR FEATURES

- World Renown Stamford Electric Generator having UL-1446 certification.
- Full generator protection with **Deep Sea 7420** controller, having UL-508 certification.
- Automatic voltage regulator with over-excitation, under-frequency compensation, under-speed protection, and EMI filtering. Entire solid-state board is encapsulated for moisture protection.
- Generator power ratings are based on temperature rise, measured by resistance method, as defined in MIL-STD 705C and IEEE STD 115, Method 6.4.4.
- Power ratings will not exceed temperature rise limitation for class H insulation as per NEMA MG1-22.40.
- Insulation resistance to ground, exceeds 1.5 meg-ohm.
- Stator receives 2000 V. hi-potential test on main windings, and rotor windings receive a 1500 V. hi-potential test, as per MIL-STD 705B.
- Full amortisseur windings with UL-1446 certification.
- Complete engine-generator torsional acceptance, confirmed during initial prototype testing.
- Full load testing on all engine-generator sets, before shipping.
- Self ventilating and drip-proof & revolving field design

ENGINE SPECIFICATIONS AND APPLICATIONS DATA

ENGINE

Manufacturer..... Perkins
 Model and Type..... 1104D-E44TG1, 4 cycle, liquid Cooled
 Aspiration..... Turbocharged
 Cylinder Arrangement..... 4 Cylinders, In-Line
 Displacement Cu. In. (Liters)..... 269 (4.4)
 Bore & Stroke In. (Cm.)..... 4.13 x 5.0 (10.5 x 12.7)
 Compression Ratio..... 16.7:1
 Main Bearings & Style..... Tin-Aluminum Babbitt
 Cylinder Head..... Cast Iron
 Pistons..... 4, Aluminum Alloy
 Crankshaft..... Forged Chrome Steel
 Exhaust Valve..... Forged Heat Resistant Steel
 Governor..... Electronic Isochronous
 Frequency Regulation..... ± 1/4%
 Air Cleaner..... Dry, Replaceable Cartridge
 Engine Speed..... 1800 rpm
 Max Power, bhp (kwm) Standby..... 95.7 (71.4)
 BMEP: psi (kpa) Standby..... 156 (1082)

FUEL SYSTEM

Type..... Diesel Fuel Oil (ASTM No. 2-D)
 Combustion System..... Direct Injection
 Fuel Injection Pump..... Common Rail
 Fuel Filter and Water Separator..... Yes

FUEL CONSUMPTION

GAL/HR (LITER/HR)	STANDBY
100% LOAD	4.7 (18)
75% LOAD	4.1 (15.7)
50% LOAD	3 (11.3)

OIL SYSTEM

Type..... Full Pressure
 Oil Pan Capacity qt. (L)..... 7.3 (6.9)
 Oil Pan Cap. W/ filter qt. (L)..... 8.9 (8.4)
 Oil Filter..... 1, Replaceable Spin-On

ELECTRICAL SYSTEM

Ignition System..... Electronic
 Eng. Alternator and Starter:
 Ground..... Negative
 Volts DC..... 12
 Max. Amp Output of Alternator..... 65
 Recommended Battery to -18°C (0°F): ..12 VDC, Size BCI# 24F
 Max Dimensions: ..10 3/4" lg X 6 3/4" wi X 9" hi, with standard round posts. Min. output at 600 CCA. Battery tray (max. dim. at 12"lg x 7"wi), hold down straps, battery cables, and battery charger, is furnished. Installation of (1) starting battery is required, with possible higher AMP/HR rating, as described above, if normal environment averages -13°F (-25°C) or cooler.

CERTIFICATIONS

All engines are EPA emissions certified. All stationary diesel engines are Tier III complaint.

APPLICATION AND ENGINEERING DATA FOR MODEL SPD-600-60 HZ

COOLING SYSTEM (CHARGE AIR COOLED)

Type of System.....	Pressurized, closed recovery
Coolant Pump	Pre-lubricated, self-sealing
Cooling Fan Type (no. of blades).....	Pusher (7)
Fan Diameter inches (cm)	18" (45.7)
Ambient Capacity of Radiator °F (°C).....	122 (50)
Engine Jacket Coolant Capacity Qt. (L).....	8.1 (7.75)
Radiator Coolant Capacity Qt. (L)	8.4 (8.75)
Engine Heat Reject. Btu/min. (Kw).....	675 (11.8)
Water Pump Capacity gpm (L/min)	39.6 (151)
Heat Reject Coolant: Btu/min (kw)	2691 (47.1)
Low Coolant Level Shutdown.....	Standard

Note: Coolant temp., shut-down switch setting at 220°F (104°C) with 50/50 (water/antifreeze) mix.

COOLING AIR REQUIREMENTS

Combustion Air cfm (m ³ /min).....	218 (6.17)
Max. Air Intake restriction:	
Clean Air Cleaner, H ₂ O (kpa).....	12 (3)

Max. Allowable Temp. Rise Amb,	
Air to Eng. Inlet, °F (°C)	15 (8)
Radiator Cooling Air, SCFM (m ³ /min).....	3400 (96)

EXHAUST SYSTEM

Exhaust Outlet Size	2.5"
Max. Back Pressure in H ₂ O (kpa)	60 (15)
Exhaust Flow, at rated KW, cfm (m ³ /min).....	508 (14.4)
Exhaust Temp, at rated KW, °F (°C).....	1191 (644)

SOUND LEVELS MEASURED IN dB(A)

	<u>Open</u> <u>Set</u>	<u>Level 2</u> <u>Encl.</u>
Level 2, Critical Silencer	77	71
Level 3, Hospital Silencer.....		66

Note: Open sets (no enclosure) have silencer system choices due to unknown job-site applications. Level 2 enclosure has installed critical silencer with upgrade to Level 3 hospital silencer. Sound tests are averaged from several test points and taken at 23 ft. (7 m) from source of noise at normal operation.

DERATE GENERATOR FOR ALTITUDE

3% per 1000 ft. (305m) above 3000 ft. (914m) from sea level

DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (5.6°C) above 104°F (40°C)

DIMENSIONS AND WEIGHTS

	<u>Open</u> <u>Set</u>	<u>Level 2</u> <u>Enclosure</u>
Length in (cm)	78 (199)	94 (238)
Width in (cm).....	42 (107)	42 (107)
Height in (cm).....	49 (124)	53 (134)
1 Ø Net Weight lbs (kg).....	1871 (848)	2396 (1087)
1 Ø Ship Weight lbs (kg).....	1971 (894)	2556 (1159)
3 Ø Net Weight lbs (kg).....	1814 (823)	2339 (1061)
3 Ø Ship Weight lbs (kg).....	1914 (868)	2499 (1133)

DEEP SEA 7420MKII DIGITAL MICROPROCESSOR CONTROLLER

Deep Sea 7420MKII



The “7420MKII” controller is an auto start mains (utility) failure module for single gen-set applications. This controller includes a backlit LCD display which continuously displays the status of the engine and generator at all times.

The “7420MKII” controller will also monitor speed, frequency, voltage, current, oil pressure, coolant temp., and fuel levels. These modules have been designed to display warning and shut down status. It also includes: (11) configurable inputs • (8) configurable outputs • voltage monitoring • mains (utility) failure detection • (250) event logs • configurable timers • automatic shutdown or warning during fault detection • remote start (on load) • engine preheat • advanced metering capability • hour meter • text LCD 132 x 64 pixel ratio display • protected solid state outputs • test buttons for: stop/reset • manual mode • auto mode • lamp test • start button • power monitoring (kWh, kVAr, kVAh, kVArh) • IP65 rating (with supplied gasket)

This controller includes expansion features including RS232, RS484 (using MODBUS-RTU/TCP), direct USB connection with PC, expansion optioned using DSENet for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the Deep Sea website and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.

Advanced Features:

PLC editor allow user configurable functions to meet specific application requirements • Data logging to assist with fault finding with 20 parameter data logging and recording on USB drives • Multiple date and time scheduler • Set maintenance periods can be configured to maintain optimum engine performance • Modules can be integrated into building management systems (BMS) using MODBUS • Configurable MODBUS pages with RTU & TCP support • Fully configurable via DSE Configuration Suite PC software • Remote SCADA monitoring via DSE Configuration Suite PC software • Engine exerciser • Automatic load transfer • Multiple configurations

STANDARD FEATURES FOR MODEL SPD-600-60 HZ

STANDARD FEATURES

CONTROL PANEL:

Deep Sea 7420 digital microprocessor with logic allows programming in the field. Controller has:

- STOP-MANUAL-AUTO modes and automatic engine shutdowns, signaled by full text LCD indicators:
- Low oil pressure • Engine fail to start
- High engine temp • Engine over speed
- Low Radiator Level • Engine under speed
- Three auxiliary alarms • Over & under voltage
- Battery fail alarm

Also included is tamper-proof engine hour meter

ENGINE:

Full flow oil filter • Air filter • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump

- Thermostat • Pusher fan and guard • Exhaust manifold
- 12 VDC battery charging alternator • Flexible exhaust connector • "Isochronous" duty, electronic governor • Vibration isolators • Closed coolant recovery system with 50/50 water to anti-freeze mixture • flexible oil & radiator drain hose.

AC GENERATOR SYSTEM:

AC generator • Shunt excited • Brushless design • Circuit Breaker installed and wired to gen-set • Direct connection to engine with flex disc • Class H, 180°C insulation • Self ventilated • Drip proof construction • UL Certified

VOLTAGE REGULATOR:

½% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • total encapsulation

DC ELECTRICAL SYSTEM:

Battery tray • Battery cables • Battery hold down straps

- 2-stage battery float charger with maintaining & recharging automatic charge stages

WEATHER/SOUND PROOF ALUMINUM HOUSING CORROSION RESISTANT PROTECTION CONSISTING OF:

- 9 Heated And Agitated Wash Stages
- Zinc Phosphate Etching-coating Stage
- Final Baked On Enamel Powder Coat
- 18/8 Stainless Steel Hardware

Design & specifications subject to change without prior notice. Dimensions shown are approximate. Contact for certified drawings.
DO NOT USE DIMENSIONS FOR INSTALLATION PURPOSES.

