POWERHOUSE DIESEL GENERATORS
RUGGED. RELIABLE. POWERFUL.

LIQUID COOLED DIESEL ENGINE GENERATOR SET

Model	HZ	STANDBY 120°C RISE
SPVD-3500-60 HERTZ	60	350

60 HZ MODEL

SPVD-3500

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.

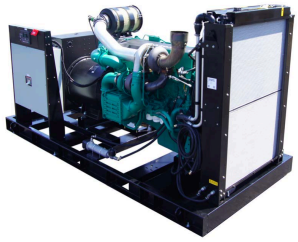
NEC 700, 701, 702, 708

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



"OPEN" GEN-SET
There is no enclosure, so gen-set must be placed within a weather protected area, un-inhabited 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.

GENERATOR RATINGS

GENERATOR MODEL	VOLTAGE		PH	HZ	130°C RISE STANDBY RATING		POWER LEAD CONNECTIONS
	L-N	L-L			KW/KVA	AMP	
SPVD-3500-3-2	120	208	3	60	350/438	1200	12 LEAD LOW WYE
SPVD-3500-3-3	120	240	3	60	350/438	1053	12 LEAD HIGH DELTA
SPVD-3500-3-4	277	480	3	60	350/438	526	12 LEAD HIGH WYE
SPVD-3500-3-5	127	220	3	60	350/438	1150	12 LEAD LOW WYE
SPVD-3500-3-16	346	600	3	60	350/438	421	4 LEAD WYE DEDICATED

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.

APPLICATION & ENGINEERING DATA FOR MODEL SPVD-3500-60 HZ

GENERATOR SPECIFICATIONS

Manufacturer..... Stamford Electric Generators
Model & Type..... S4L1D-F311, 4 Pole, 12 Lead, Three Phase
..... S4L1D-E311, 4 Pole, 12 Lead, 480V, Three Phase
.....HCI434E-17, 4 Pole, 4 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% (1/2 cycle, no load to full load)
Unbalanced Load Capability .....100% of standby amps
One Step Load Acceptance.....100% of nameplate rating
Total Stator and Load Insulation ..... Class H, 180°C
Temperature Rise.....120°C R/R, standby rating @ 40°C amb.
3 Ø Motor Starting @ 30% Voltage Dip (208-240V) .... 750 kVA
3 Ø Motor Starting @ 30% Voltage Dip (480V)..... 970 kVA
3 Ø Motor Starting @ 30% Voltage Dip (600V)..... 1140 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)
Alternator..... Self ventilating and drip-proof
Ltd. Warranty Period .....24 Months from start-up date or
..... 1000 hours use, first to occur.

GENERATOR FEATURES

- World Renown Stamford Electric Generator having UL-1446 certification.
- Full generator protection with **Basler DGC-2020** 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.

ENGINE SPECIFICATIONS AND APPLICATIONS DATA

ENGINE

Manufacturer.....VOLVO-PENTA
Model and Type..... TAD1352GE, 4 cycle, liquid Cooled
Aspiration ..... Turbo After Cooler, Air to Air
Charged Air Cooled System …… Air to Air
Cylinder Arrangement .....6 Cylinders, In-Line
Displacement Cu. In. (Liters) ..... 780(12.8)
Bore & Stroke in (Cm) ..... 5.16 x 6.22 (13.1 x 15.8)
Compression Ratio.....18:1
Main Bearings.....Tin Overlay with Babbit Backing
Cylinder Head.....Cast Iron with overhead Cam
Pistons.....Aluminum Alloy with Graphite Coating
Crankshaft..... Induction Hardened, Heat Treated Forged
Valves .....Heat Treated and Hardened Exhaust Valve
Governor ..... Electronic, EMS 2.2
Frequency Regulation.....± 1/4%
Air Cleaner..... Dry, Replaceable Cartridge
Engine Speed .....1800 rpm
Max Power, bhp (kwm) Standby 537 (395)
BMEP: psi (MPa) Standby 299 (2.1)
Ltd. Warranty Period .....2 Year or 1000 hrs, first to occur

FUEL SYSTEM

Type .....Diesel Fuel Oil (ASTM No. 2-D)
Combustion System.....Direct Injection
Fuel Injection Pump..... Electronic, Delphi E3
24 VDC Coolant heaters.....Optional Equipment
Fuel Filter .....……..Yes with Water Separator

FUEL CONSUMPTION

GAL/HR (LITER/HR)	STANDBY
100% LOAD	25.5 (96.5)
75% LOAD	19.3 (73.1)
50% LOAD	13.2 (50.0)

OIL SYSTEM

Type .....Full Pressure
Oil Pan Capacity qt. (L)..... 31.6 (29.9)
Oil Pan Cap. W/ filter qt. (L) 38 (35.9)
Oil Filter..... 3, Replaceable Cartridge type

ELECTRICAL SYSTEM

Ignition System .....Electronic
Eng. Alternator/Starter: 24 VDC, negative ground, 80 amp/hr.

Recommended battery to -18°C (0° F): ...(2) 12 VDC, BCI# 27, Max. Dimensions: 12”lg x 6 3/4” wi x 9” hi, with standard round posts. Min output 700 CCA. Battery tray (max. dim. at 12”lg x 7”wi). This model has (2) battery trays, (2) hold down straps, (2) sets of battery cables, and (1) battery charger. Installation of (2) 12VDC starting batteries connected in series for 24VDC output is required, with possible higher AMP/HR rating, as described above, if the normal environment temperature averages -13° F (-25°C) or cooler.

CERTIFICATIONS

All engines are EPA emissions certified. All emergency stationary diesel engines are Tier III compliant.

APPLICATION & ENGINEERING DATA FOR MODEL SPVD-3500-60 HZ

COOLING SYSTEM

Type of System.....Air to Air, Charged Air Cooler
Coolant Pump ..... Pre-lubricated, self-sealing
Cooling Fan Type ..... Pusher
Fan Diameter inches (cm) 35.1 (89)
Fan drive ratio..... 0.99:1
Ambient Capacity of Radiator °F (°C).....131 (55)
Engine Jacket Coolant Capacity gal. (L).....5.28 (20)
Radiator Coolant Capacity gal. (L) 11.7 (44)
Water Pump Capacity gpm (L/min) 87.0 (329)
Heat Reject Coolant: Btu/min .... ….10,066
Air to Air Heat Reject, BTU/min. .... ….4,948
Heat Radiated to Ambient, BTU/min..... ..... ….2,988
Low Radiator Coolant Level Shutdown……..Standard
Note: Coolant temp. shut-down switch setting at 228°F (109°C) with 50/50 (water/antifreeze) mix.

COOLING AIR REQUIREMENTS

Combustion Air cfm (m^3/min)..... .....918 (26.0)
Max Air Intake Restrictions:
Clean Air Cleaner, KPA (psi)..... .....5 (1.5)
Radiator Cooling Air, SCFM (m^3/min)……....16,325 (462)

EXHAUST SYSTEM

Exhaust Outlet Size .....6"
Max. Back Pressure in KPA (in. H2O) 10 (40)
Exhaust Flow, at rated KW, CFM (m3/min).....2,391 (68)
Exhaust Temp, (Stack) °F (ºC)..... .....995 (535)

SOUND LEVELS MEASURED IN dB(A)

	Open Set	Level 2 Encl.
Level 2, Critical Silencer	90	80
Level 3, Hospital Silencer		75

Note: Open sets (no enclosure) have optional 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.(305 meters) above 3000 ft. (914 meters) from sea level.

DERATE GENERATOR FOR TEMPERATURE

2% per 10°F (12°C) above 104°F (40°C)

DIMENSIONS AND WEIGHTS

	Open Set	Level 2 Enclosure
Length in (cm)	132 (335)	162 (411)
Width in (cm)	52 (132)	52 (132)
Height in (cm)	65 (165)	80 (203)
Net Weight lbs (kg)	6802 (3085)	8209 (3724)
Ship Weight lbs (kg)	7103 (3222)	8574 (3889)

BASLER DGC-2020 DIGITAL MICROPROCESSOR CONTROLLER

Basler DGC-2020

The "**2020**" controller is a highly advanced integrated gen-set control system 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.

Basler "**DGC-2020"** includes: Generator metering (including three phase) • Engine – Generator protections including IEEE-[27] under voltage, [32] power, [40] loss of excitation, [59] over voltage, [81] over and under frequency, Exercise timer • SAE J1939 engine ECU communications • Expansion capabilities for both inputs and outputs with expansion • Remote communications through RS-485 to Basler's RDP110 remote Display panel • (16) programmable contact inputs • (15) programmable contact outputs- (3) for up to 30AmpDC and (12) for up to 2 Amp DC • Illuminated Text Display • Front panel menu scroll buttons • Front panel operation mode buttons for STOP, RUN and AUTO • Alarm Silence and Lamp Test buttons

This controller includes expansion features including, RS485 (using MODBUS), direct USB connection with PC, expansion optioned using BESTCOMSPlus for remote annunciation and remote relay interfacing for a distance of up to 3300FT. The controller software is freely downloadable from the internet and allows monitoring with direct USB cable, LAN, or by internet via the built in web interface.

Further expansion is available by adding the optional RDP-110 remote display panel module. This featured device will allow Four programmable LEDs (2) alarms and (2) pre-alarms • (17) alarms and pre-alarms displayed from Basler controller • audible alarm horn • lamp test and alarm silence buttons • RD100 local power supply inputs of either 12vdc or 24vdc • connects through Basler controller through RS-485 communications protocol • conduit box included for (2) mounting configurations- either surface mount or semi-flush mounting.

STANDARD FEATURES FOR MODEL SPVD-3500-60 HZ

STANDARD FEATURES

CONTROL PANEL:

Basler DGC-2020digital 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
- High engine temp
- Low Radiator Level
- Three auxiliary alarms
- Battery fail alarm
- Engine fail to start
- Engine over speed
- Engine under speed
- Over & under voltage

Also included is tamper-proof engine hour meter

ENGINE:

Fuel filter • Full flow Oil filter • Air filter • Fuel pump • Oil pump • Solenoid type starter motor • Hi-temp radiator • Jacket water pump • Thermostat • Pusher fan and guard • Exhaust manifold • Electronic Governor • 24 VDC battery charging alternator • Flexible fuel and exhaust connectors • Vibration isolators • Open coolant recovery system with 50/50 water to anti-freeze mixture • flexible oil & radiator hose • Shut-down sensors for low oil pressure, high coolant temp., low coolant level, high ambient temp.

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

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

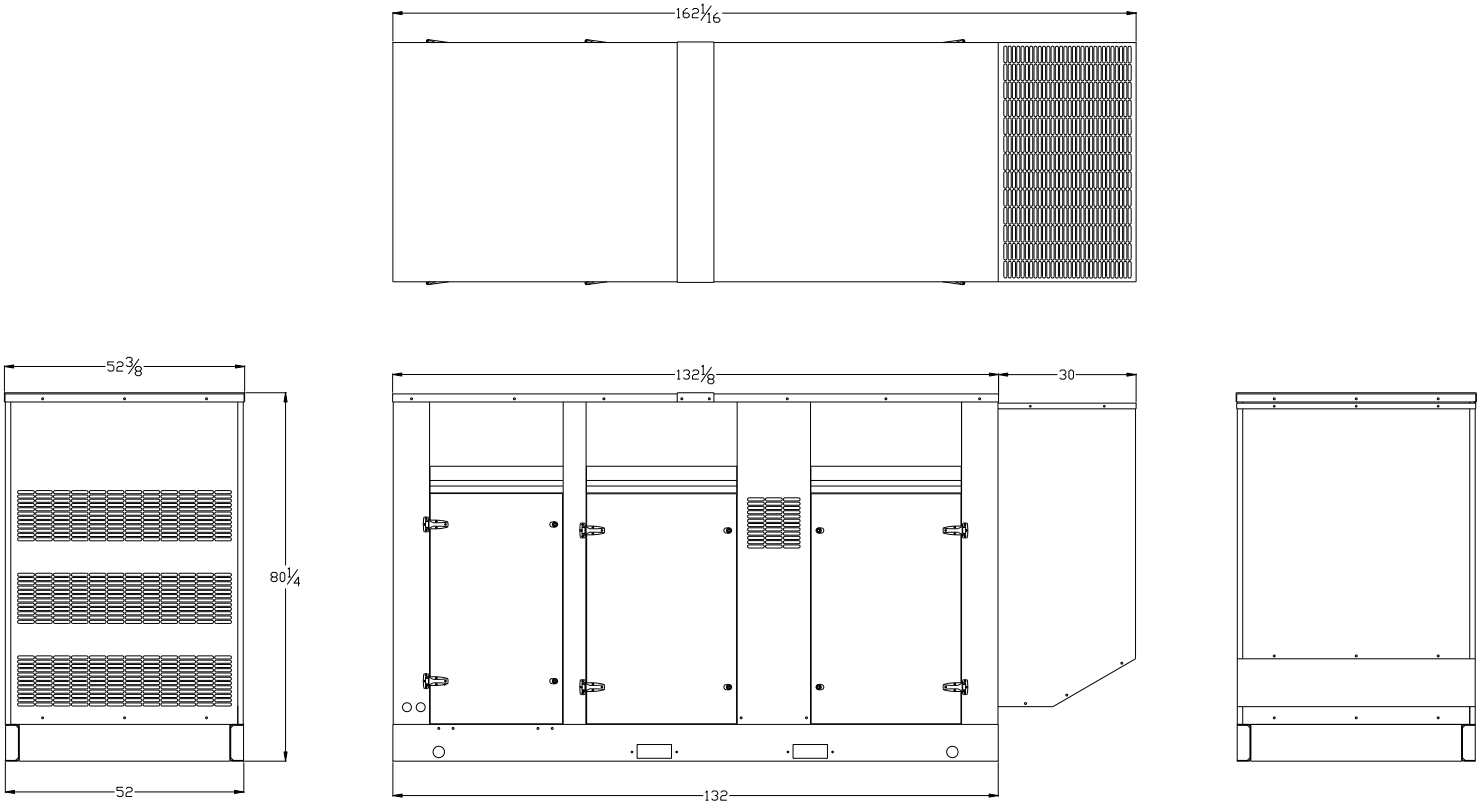
VOLTAGE REGULATOR:

1% Voltage regulation • EMI filter • Under-speed protection • Over-excitation protection • total encapsulation

DC ELECTRICAL SYSTEM:

Battery trays • Battery cables • Battery hold down straps • 3-stage battery charger with float, absorption, & bulk automatic charge stages

WEATHER / SOUNDPROOF 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