



## INTRODUCTION

Aksa Power Generation has been producing industrial generator sets with an innovative compact design and excellence in quality for over 30 years. Aksa has been providing reliable power through three main production plants and over 15 branch offices worldwide.

### Power (kVA)

60 Hz

VOLTAGE	PHASE	Pf	STANDBY RATING (ESP)		Standby Ampere	PRIME RATING (PRP)		Prime Ampere
			kW	kVA		kW	kVA	
240/120	3	0.8	621.6	777	2332.2	565.8	707.25	2122.8
208/120	3	0.8	621.6	777	2156.8	565.8	707.25	1963.2
480/277	3	0.8	624.2	780.25	938.5	567.6	709.5	853.4

**STANDBY POWER (Maximum)** Power available at variable load in the event of main power network failure. No over load is permitted.

**PRIME POWER** Power available at variable load in lieu of a main power network. Overload of 10% is permitted for 1 hour in every 12 hours of operation. The above ratings represent the engine performance capabilities to conditions specified in accordance with ISO 8528. Derating may be required for conditions outside of the test conditions.

## GENERAL CHARACTERISTICS

Model Name	APD-EPAV600T4
Frequency (Hz)	60
Fuel Type	Diesel
Engine Make and Model	VOLVO - TWD1673GE ( <b>Tier-4</b> )
Alternator Make and Model	STAMFORD HCI544F
Control Panel Model	DSE 7320

**ENGINE SPECIFICATIONS**

Engine	Volvo
Engine Model	TWD1673GE
Number of Cylinder	6 cylinders - in line
Max. power @ rated rpm; kWm (BHP)	685 (932)
Brake mean effective pressure;	2.6 MPa @ prime
Aspiration & Cooling	Turbo Charged
Total displacement; in <sup>3</sup> (L)	983.9 (16.12)
Bore; in. (mm)	5.67 (144)
Stroke; in. (mm.)	6.5 (165)
Compression Ratio	16.8:1
Governor Type	Volvo/EMS 2.3
Rated rpm	1800
Rotation	CCW viewed on flywheel

**ENGINE ELECTRICAL SYSTEM**

Charging Alternator	24V / insulated from earth
Alternator Rating; (amp)	300
Starter motor power; (kW)	7
Starter motor rated voltage; (dc)	12
Battery quantity x rating & CCA	2 x 225Ah

**FUEL SYSTEM**

Type of injection	Direct
Fuel injection pump	Unit injector hybrid
Max. fuel flow; L/hr (gal/hr)	210/55.5
Fuel filter & water separator	Available

**FUEL CONSUMPTION**

100% Load (Standby) (gal/hr)	47.77
100% Load (Prime) (gal/hr)	43
75% Load (Prime) (gal/hr)	32.25
50% Load (Prime) (gal/hr)	22.27

**EXHAUST SYSTEM**

Exhaust gas flow; (m3/min)	126.6
Max. back pressure; (kPa)	19
Max. exhaust gas temp after turbine (°C)	455



### COOLING SYSTEM

Radiator ambient temp; °C (°F)	TBD
Coolant capacity; L (gal)	48 (12.68)
Thermostat operation range; °C	82-92
Combustion air flow; m³/min	48.1
Engine coolant flow; L/min (gal/min)	360 (95.4)
Cooling fan air flow;	816 m³/min
Max allowed air intake restriction including piping kPa	5
Air filter	Volvo Penta filter

### LUBRICATION SYSTEM

Oil capacity; L (gal)	48 (12.68)
Oil cooler	Water cooled
Oil temp (continuous operation); °C	130

### ALTERNATOR CHARACTERISTICS

Manufacturer	Stamford
Model	HCI544F - 60Hz
Design	Double Layer Lap
Exciter type	Self Excited
Stator	2/3 winding pitch
Rotor	Single bearing, flexible disc
Leads	12
Insulation	Class H
Temp. rise @ 40°C ambient	125°C Prime
Max. over-speed; rev/min	2250
Voltage regulator	MX321

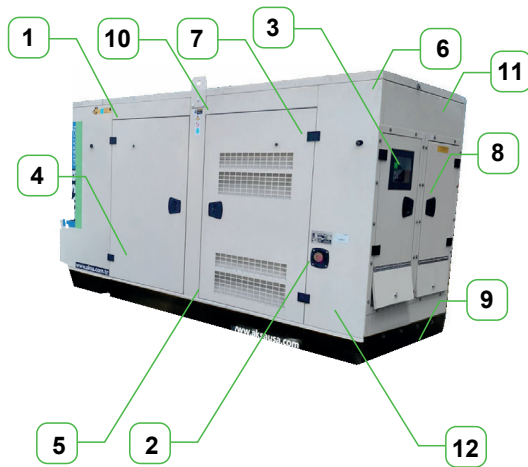
### OPTIONAL 2 POSITION VSS (kW Rating at 1800rpm/60Hz)

480/277V - 3ph – 0.8pf	600 kW - 902.1A
208/120V - 3ph - 0.8pf	600 kW - 2081A



### GEN.SET CANOPY DIMENSIONS

LENGTH (in)	271.3
WIDTH (in)	88.82
HEIGHT (in)	101.57
DRY WEIGHT (lb)	18607
FUEL TANK CAPACITY (gal)	554.8
GENSET SOUND LEVEL (dBA@23ft)	80



1. Steel structures.
2. Emergency stop push button.
3. Control panel is located at the rear side of the generator set.
4. Corrosion-resistant locks and hinges.
5. Oil could be drained via valve and a hose
6. Exhaust system in the canopy.
7. Special large access doors for easy maintenance
8. In front and back side special large access doors for easy maintenance
9. Base frame -fuel tank.
10. Lifting points similar to ISO container , located on each top corner of the canopy.
11. The cap on the canopy provides easy access to radiator cap.
12. Sound proofing materials

### BASE-FRAME ENCLOSURE

- The complete gen-set is mounted entirely on a heavy duty base frame with an integral double wall fuel tank.
- Anti vibration isolators are installed between engine/alternator supports and the base frame.
- All enclosure parts are designed with module principles without welding
- Enclosure has four doors on each side for easy serviceability and back door for control system.
- Exhaust silencer is protected (Coated) against environmental outdoor conditions and is internally mounted within enclosure.
- Exhaust pipe thermally insulated on engine compartment.
- All metal enclosure parts are painted by electrostatic polyester powder paint.
- Fuel filling cap is within the Enclosure, and reachable through lockable door.
- Emergency stop switch externally mounted on enclosure.
- Components installed in sheet steel enclosure.
- Phosphate chemical, pre-coating of steel provides corrosion resistant surface
- Polyester composite powder topcoat forms high gloss and extremely durable finish
- Lockable hinged panel door provides for easy component access

### CONTROL PANEL

Control Module	DSE
Control Module Model	DSE 7320
Communication Ports	MODBUS



1. Menu navigation buttons
2. Close mains button
3. Main Status and instrumentation display
4. Alarm LED's
5. Close generator button
6. Status LED's
7. Operation selecting buttons



## GENERATING SET CONTROL UNIT

The DSE 7320 includes the additional capability of being able to monitor a mains (utility) supply and is therefore suitable for controlling a standby generating set in conjunction with an automatic transfer switch.

The DSE7320 also indicates operational status and fault conditions, automatically shutting down the generating set and indicating faults by means of its LCD display on the front panel.

- UL recognized, NFPA110 Level 1 compatible
- LCD text display, key menu navigation and front panel editing
- Off/Manual/Auto model switch
- Two wire starting/stopping in Auto mode
- Engine exerciser
- IP65 front panel rating with supplied sealing gasket
- Configurable 8 inputs, 6 analogue inputs, 6 DC outputs with expansion capability
- Real time clock provides accurate event logging
- Fully configurable via DSE Configuration Suite PC software
- Remote SCADA monitoring and BMS integration features
- License free PC software

## STANDARD SPECIFICATIONS

Microprocessor controlled

- 132 x 64 pixel LCD display makes information easy to read
- Front panel programming and also via PC software
- Soft touch membrane keypad and five key menu navigation
- Remote communications via RS232, RS485 and ethernet.
- Event logging (50) showing date and time
- Multiple date and time engine exercise mode and maintenance scheduler
- Coolant heater control.
- Controls; stop, manual, auto, test, start, mute lamb test/transfer to generator, transfer to mains, menu navigation.

## Instruments

### ENGINE

- Engine speed
- Oil pressure
- Coolant temperature
- Run time Battery volts
- Engine maintenance due

### MAINS

- Voltage (L-L, L-N)
- Frequency

### GENERATOR

- Voltage (L-L, L-N)
- Current (L1-L2-L3)
- Frequency
- Earth current
- kW
- Pf
- kVAr
- kWh, kVAh, kVArh
- Phase sequence

**PRE-ALARMS**

- Low oil pressure
- High engine temperature
- Low engine temperature
- Over /Under speed
- Under/over generator frequency
- Under/over generator voltage
- ECU warning

**ELECTRICAL TRIP**

- Earth fault
- kW over load
- Generator over current
- Negative phase sequence

**WARNING**

- Charge failure
- Battery under voltage
- Fail to stop
- Low fuel level (opt.)
- kW over load
- Negative phase sequence
- Loss of speed signal

**SHUT DOWNS**

- Fail to start
- Emergency stop
- Low oil pressure
- High engine temperature
- Low coolant level
- Over /Under speed
- Under/over generator frequency
- Under/over generator voltage
- Oil pressure sensor open
- Phase rotation

**Options**

- High oil temperature shut down
- Low fuel level shut down
- Low fuel level alarm
- High fuel level alarm
- EXPANSION MODULES
- Additional LED module (2548)
- Expansion relay module (2157)
- Expansion input module (2130)

**Standards**

- Electrical Safety / EMC compatibility
- BS EN 60950 Electrical business equipment
- BS EN 61000-6-2 EMC immunity standard
- BS EN 61000-6-4 EMC emission standard



## STANDARD SPECIFICATIONS

- **EPA Certified Tier 4 – FINAL** engine powered generator set for Mobile / Prime Applications.
- The Generator set is designed and manufactured in a facility certified to **ISO9001:2015** standards.
- **Volvo heavy duty** four cycle industrial diesel engine delivers low emission, reliable power, fuel efficiency and fast response to load changes.
- **Non-proprietary control system** provides total gen-set system integrated control, protections, metering, automatic starting/stopping with options of remote control, remote display or remote annunciation.
- **Aksa Power Generation** provides **single source responsibility** for the generator set & accessories.
- The generator set, with its components, are **prototype tested** and **production tested**.
- **Stamford** industrial generators meet the requirements of BS EN 60034 and the relevant sections of other international standards.
- **Heavy duty base frame** with integral pad **vibration isolators** eliminates the need for under unit spring vibration isolators.

## Convenience Panel Accessories

- (2) Two 20A, 120V GFCI receptacles and breakers
- (3) Three 50A, 240V twist lock receptacles and breakers
- 5-15A, 125V inlet receptacles for battery charger and water heater
- Two wire remote start station
- Generator set voltage adjust rheostat
- (5) 400A rated, stud type quick connect cam-locks

## Standard Features & Accessories

- Trailer w/spare tire and tool box
- Sound Attenuated Steel Enclosure
- Heavy Duty Steel Base-frame
- Exhaust system with Doc+SCR
- Flex Fuel Lines
- Oil Drain Valve & Extension
- Convenience Panel
- Voltage Selector Switch – 3 position
- Emergency Stop Switch
- Battery, Battery Rack & Cables
- Battery Charger (Input: 196-264V, Output: 27.6V 5A or 13.8V 5A)
- Main Line CB
- Jacket Water Heater (120 VAC, 1000 W)
- Operations Manual
- 1 Year / 2000 hours Limited Warranty

## Voltage Selector Switch

- Three positions at 480/277V, 208/120V - 3ph & 240/120 - 1ph
- Product of Salzer or Kraus&Naimer

## Trailer

- DOT approved 24,000lbs heavy duty triple axle trailer
- Spring axles w/electric brakes
- Breakaway kit with charger
- 5000lbs front jack and rear stabilizer jacks
- 7 pin trailer plug
- Tool box and spare tire

## Circuit Breaker

- 250Amp capacity main line circuit breaker
- Shunt trip controller by generator set control



**OPTIONAL ACCESSORIES**

- Upsized Alternator
- PMG Excitation
- Alternator Anti-condensation Heater
- 4 Position VSS
- Fuel Level Monitoring on Controller & High Fuel Alarm
- Fuel Line Check Valve
- Oil Temperature Gauge
- Oil Heater
- Battery Charger 10Amp
- Battery Heater Blanket
- Main Line CB (100% rated)
- Remote Monitoring and Control
- Remote Annunciator

\* Generator shall de-rate 3% for every 1,000 ft above 2,500 ft altitude.

**AKSA CERTIFICATES**

- TS ISO 8528
- CE
- SZUTEST
- 2000/14/EC

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