



## Introduction

Aksa is committed to providing the most effective solution to the Data Center industry with the power it takes from engineering, production, distribution, and customer-oriented experience and knowledge. We are constantly improving designs, products and infrastructure to offer the highest level of reliability for Emergency Power Systems. While serving the industry in hundreds of countries Globally, we design our products and systems in line with the needs of Data Center practitioners at the center of our focus. Aksa generator group provides continuity, reliability and ideal performance for Data Centers.

## Power

3 Phase, 60 Hz, PF 0.8

| Voltage (V) | STANDBY RATING (ESP) |        | DCC RATING (DCP) |        | DCC CURRENT (A) |
|-------------|----------------------|--------|------------------|--------|-----------------|
|             | kW                   | kVA    | kW               | kVA    |                 |
| 480 / 277   | 1104.7               | 1380.9 | 1002.48          | 1253.1 | 1661            |

Standby Rating (ESP) : Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. ESP is in accordance with ISO 8528-1. Overload is not allowed.

Data Center Continuous (DCP) : Data centre power is defined as being the maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours.

\*Data tolerance  $\pm 5\%$

## General Characteristics

|                           |                                    |
|---------------------------|------------------------------------|
| Model Name                | AP 1380-6                          |
| Frequency (Hz)            | 60                                 |
| Fuel Type                 | Diesel                             |
| Engine Make and Model     | Perkins 4012-46TWG2A (DATA CENTER) |
| Alternator Make and Model | Stamford S6L1D-E4                  |
| Control Panel Model       | DSE 7320                           |
| Canopy                    | OpenGenset                         |

## Engine Specifications

### General Data

|              |                            |
|--------------|----------------------------|
| Manufacturer | Perkins                    |
| Engine Model | 4012-46TWG2A (DATA CENTER) |



|                            |                                     |
|----------------------------|-------------------------------------|
| Number of Cylinders / Type | 12 cylinders - V type               |
| Bore mm (in)               | 160                                 |
| Stroke mm (in)             | 190                                 |
| Displacement l (cu. In)    | 45.482                              |
| Compression Ratio          | 13.6:1                              |
| Engine Speed (rpm)         | 1800                                |
| Standby Power (kW/hp)      | 1121/1637                           |
| DCC Power (kW/hp)          | 1110/1489                           |
| Block Heater (QTY)         | 2                                   |
| Block Heater Power (Watt)  | 3000                                |
| Governor System            | Electronic                          |
| Air Filter                 | Dry Type                            |
| Aspiration                 | Turbo Charged and Charge Air Cooled |

#### Lubrication System

|                             |     |
|-----------------------------|-----|
| Oil Capacity l (gal)        | 177 |
| Max. Oil Temperature °C (F) | 105 |

#### Fuel System

|                   |        |
|-------------------|--------|
| Fuel Type         | Diesel |
| Injection Type    | Direct |
| Type of Fuel Pump | Delphi |

#### Electrical System

|                               |        |
|-------------------------------|--------|
| Operating Voltage (Vdc)       | 24 Vdc |
| Battery and Capacity (Qty/Ah) | 4x143  |
| Charge Alternator (A)         | 40     |

#### Cooling System

|                                        |              |
|----------------------------------------|--------------|
| Cooling Method                         | Water Cooled |
| Coolant Capacity (engine only) l (gal) | 73           |

#### Exhaust System

|                                        |      |
|----------------------------------------|------|
| Exhaust Gas Flow (m³/min)              | 242  |
| Exhaust Back Pressure in-Hg (kPa)      | 5    |
| Exhaust Gas Temperature °C (F)         | 482  |
| Heat Rejection to Exhaust kW (BTU/min) | 1055 |

#### Radiator

|                                       |      |
|---------------------------------------|------|
| Cooling Fan Air Flow m³/min (ft³/min) | 1434 |
|---------------------------------------|------|



External Restriction to Cooling Airflow (Pa) 120

### Fuel Consumption

|                                      |       |
|--------------------------------------|-------|
| Fuel Cons. @100% DCC Load l/h (kg/h) | 255   |
| Fuel Cons. @75% DCC Load l/h (kg/h)  | 190,3 |
| Fuel Cons. @50% DCC Load l/h (kg/h)  | 143,6 |

### Alternator Characteristics

|                                |          |
|--------------------------------|----------|
| Manufacturer                   | Stamford |
| Alternator Model               | S6L1D-E4 |
| Frequency (Hz)                 | 60       |
| Power (kVA)                    | 1300     |
| Voltage (V)                    | 480      |
| Phase                          | 3        |
| A.V.R.                         | MX341    |
| Voltage Regulation             | 1        |
| Insulation Class               | H        |
| Protection Class               | IP23     |
| Rated Power Factor             | 0,8      |
| Weight Complete Generator (kg) | 2020     |
| Temperature Rise Class         | H        |
| Cooling Air (m³/min)           | 84.6     |

### Open Generator Set Dimensions

|                        |      |
|------------------------|------|
| Length mm              | 4922 |
| Width mm               | 1880 |
| Height mm              | 2366 |
| Full Tank Capacity (l) | 2000 |

### Control Panel

|                      |          |
|----------------------|----------|
| Manufacturer         | 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

## Standard Devices

DSE model 7320, Auto Mains Failure control module, with a highly sophisticated level of new features and functions  
Static battery charger, Fuses for control circuits

## Control Unit

- The DSE 7320 control module is a standard addition to our generator sets from 220 kVA upwards and it has been designed to start and stop diesel and gas generating sets that include electronic and non electronic engines.
- 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.

## Construction and Finish

- 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

## Installation

The Control panel is mounted at the generating set baseframe on robust steel stand or power module. Located at side of generating set with properly panel visibility.

## Engine

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

## Shut Down

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

## Warnings

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

## Generator

## Pre-alarms

## Electrical Trip



- Voltage (L-L, L-N)
- Current (L1-L2-L3)
- Frequency
- Earthcurrent
- kW
- Pf
- kVAr
- kWh, kVAh, kVArh
- Phasesequence

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

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

### Mains

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

### Expansions

- Additional LED module (2548)
- Expansion relay module (2157)
- Expansion input module (2130)

### Options

- High oil temperature shut down
- Low fuel level shut down
- Low fuel level alarm
- High fuel level alarm

### Control Panel Compliance List

- Electrical Safety / Electro Magnetic Compatibility (EMC)
- BS EN 61000-6-2 EMC Generic Immunity Standard
- BS EN 61000-6-4 EMC Generic Emission Standard
- BS EN 60950 Electrical Safety

### Static Battery Charger

- Battery charger is manufactured with switching-mode and SMD technology and it has high efficiency.
- Battery charger models' output V-I characteristic is very close to square
- 2405 has fully output short circuit protection and it can be used as a current source.
- 2405 charger has high efficiency, long life, low failure rate, light-weight and low heat radiated in accordance with linear alternatives.
- The charger is fitted with a protection diode across the output.
- Charge fail output is available.
- Connect charge fail relay coil between positive output and CF output.
- Input: 196-264V.
- Output: 27,6V 5A or 13,8V 5A.

### Standard Equipment

- Water cooled diesel engine
- Radiator and electrical motor driven fan
- Protective cage to prevent rotating and touching hot parts
- Output breaker
- Electric starter and charge alternator
- Battery (lead acid), cables and stand
- Automatic synchronization and power control system (multiple parallel generator)
- Circulation pump (for engine block heater)
- Engine block water heater
- Steel chassis and anti-vibration wedges
- Fuel tank separate from the group
- Flexible fuel connection hoses
- Alternator with single bearing and H insulation class
- Industrial capacity muffler and flexible steel compensator
- Electronic battery charger



- Operating and installation instructions

## Optional Equipment

### Engine

- Fuel-Water Separator Filter
- Oil heater
- Air filter

### Alternator

- Anti-Condensation Heater
- Over sized alternator
- PMG excitation + AVR
- Main line circuit breaker
- 5% derate when air inlet filters are fitted

### Control Panel

- Automatic synchronising and power control system (Multi gen-set Parallel)
- Parallel system with mains
- Transition synchronization with mains
- Alarm output relays
- Earth fault, single set
- Parallel system with mains
- Remote relay output
- Remote communication with modem
- Charge Ammeter

### Transfer Panel

- Three or four pole contactor
- Three or four pole motor operated circuit breaker

### Auxiliary Equipment

- Main Fuel Tank
- Automatic or manual fuel filling system
- Electrical oil drain pump
- Low and high fuel level alarm
- Inlet and outlet motorized louvers
- Inlet and outlet acoustic baffles
- Tool kit for maintenance
- 1500/3000 hours maintenance kit
- Supplied with oil and coolant (-30°C)

### Exhaust

- Residential Silencer
- Silencer Spark Arrester
- Critical Silencer
- Catalytic Converter

### Canopy

- Galvanized Coating
- ISO Container
- Marine Grade Paint

### Optional Alternator and Control Panel

Please contact to your reseller for additional Alternator, Control Panel and Breaker Switch options.

## Aksa Certificates

### Directive

- 2006/42/EC : Machinery Safety Directive
- 2014/30/EU : Electromagnetic Compatibility Directive
- 2014/35/EU : Low Voltage Directive

### Standarts

- TS ISO 8528-5:2022 / TS EN ISO 8528-13:2018 : Reciprocating internal combustion engine-driven alternating current generating sets- Part:13: Safety



Quality Management Systems

ISO 9001:2015  
ISO 14001:2015  
ISO 45001:2018  
ISO 50001:2018  
ISO 27001:2013  
ISO 10002:2018