



## INTRODUCTION

Aksa power generation system, providing optimum performance, and reliability, for stationary standby, prime power, and continuous duty applications. All generator sets are factory build, and production tested.

### Power (kVA)

3 Phase, 60 Hz, PF 0.8

| Voltage | STANDBY RATING (ESP) |        | PRIME RATING (PRP) |        | Standby Amper |
|---------|----------------------|--------|--------------------|--------|---------------|
|         | kW                   | kVA    | kW                 | kVA    |               |
| 380/220 | 355,00               | 443,75 | 320,00             | 400,00 | 674,23        |
| 208/120 | 355,00               | 443,75 | 321,00             | 401,25 | 1231,76       |
| 480/277 | 355,00               | 443,75 | 323,00             | 403,75 | 1231,76       |

**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.

**PRIME RATING (PRP)** Applicable for supplying power to varying electrical load for unlimited hours. PRP is in accordance with ISO 8528-1. 10 % overload capability is available for a period of 1 hour within 12-hour period of operation.

## General Characteristics

|                           |                         |
|---------------------------|-------------------------|
| Model Name                | AD 445-6                |
| Frequency (Hz)            | 60                      |
| Fuel Type                 | Diesel                  |
| Engine Made and Model     | HYUNDAI P158LE-1 - 60Hz |
| Alternator Made and Model | HCI 444 F - 60Hz        |
| Control Panel Model       | DSE 7320                |
| Canopy                    | MS 70                   |

## ENGINE SPECIFICATIONS

|                                       |  |
|---------------------------------------|--|
| Engine                                | HYUNDAI                                    |
| Engine Model                          | P158LE-1 - 60Hz                            |
| Number of Cylinder (L)                | 8 cylinders - V type                       |
| Bore (mm.)                            | 128  |
| Stroke (mm.)                          | 142  |
| Displacement (lt.)                    | 14.618                                     |
| Aspiration                            | Turbo Charged and Intercooled (Air to Air) |
| Compression Ratio                     | 15.0:1                                     |
| RPM (d/dk)                            | 1800                                       |
| Oil Capacity (Total With Filter) (lt) | 21   |
| Standby Power (kW/HP)                 | 402/539                                    |
| Block Heater QTY                      | 1  |
| Block Heater Power (Watt)             | 3000                                       |
| Fuel Type                             | Diesel                                     |
| Injection Type and System             | Direct                                     |
| Type of Fuel Pump                     | Bosh In-Line P Type                        |



|   |              |
|---|--------------|
| Governor System                                     | Electronic   |
| Operating Voltage (Vdc)                             | 24 Vdc       |
| Battery and Capacity (Qty/Ah)                       | 2x120        |
| Charge Alternator (A)                               | 45           |
| Cooling Method                                      | Water Cooled |
| Cooling Fan Air Flow (m3/min)                       | 410          |
| Coolant Capacity (engine only / with radiator) (lt) | 20/68.5      |
| Air Filter  | Dry Type     |
| Fuel Cons. Prime With %100 Load (lt/hr)             | 91.3         |
| Fuel Cons. Prime With %75 Load (lt/hr)              | 67.5         |
| Fuel Cons. Prime With %50 Load (lt/hr)              | 46.5         |

### ALTERNATOR CHARACTERISTICS

|                                   |                  |
|-----------------------------------|------------------|
| Manufacturer                      | Stamford         |
| Alternator Made and Model         | HCI 444 F - 60Hz |
| Frequency (Hz)                    | 60               |
| Power (kVA)                       | 400              |
| Voltage (V)                       | 400              |
| Phase                             | 3                |
| A.V.R.                            | AS440            |
| Voltage Regulation                | (+/-)1%          |
| Insulation System                 | H                |
| Protection                        | IP23             |
| Rated Power Factor                | 0.8              |
| WEIGHT COMP. GENERATOR (Kg)       | 1160             |
| COOLING AIR (m <sup>3</sup> /min) | 59,4             |

### Open Gen.Set Dimensions (mm)

|                     |      |
|---------------------|------|
| LENGTH              | 3031 |
| WIDTH               | 1550 |
| HEIGHT              | 1985 |
| DRY WEIGHT (kg.)    | 3170 |
| TANK CAPACITY (lt.) | 700  |

### Gen.Set Canopy Dimensions (mm)

|                     |      |
|---------------------|------|
| LENGTH              | 4434 |
| WIDTH               | 1606 |
| HEIGHT              | 2496 |
| DRY WEIGHT (kg.)    | 4145 |
| TANK CAPACITY (lt.) | 700  |

1. Steel structures.
2. Emergency stop push button.
3. Control panel is mounted on the baseframe . Located



- at the right 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.
- 11. The cap on the canopy provides easy access to radiator cap.
- 12. Sound proofing materials
- 13. Plastic air intake pockets.

**INTRODUCTION**

Sound-attenuated and weather protective enclosures for generating sets from Aksa, meet even the sound requirements and provide optimum protection from inclement weather and development by our specialist acoustic engineers. Our modular designed sound insulated canopies provide ease of access for servicing and general maintenance and interchangeable components permitting on-site repair. Enclosures are designed to optimize genset cooling performance, providing you with confidence that genset ratings and ambient capability.

**Control Panel**

|                      |   |
|----------------------|---|
| Control Module       | DSE   |
| Control Module Model | DSE 7320  |
| Communication Ports  | MODBUS  |
|                      | <ul style="list-style-type: none"> <li>1. Menu navigation buttons</li> <li>2. Close mains button</li> <li>3. Main Status and instrumentation display</li> <li>4. Alarm LED's</li> <li>5. Close generator button</li> <li>6. Status LED's</li> <li>7. Operation selecting buttons</li> </ul> |

**Devices**

DSE, model 7320 Auto Mains Failure control module Static battery charger Emergency stop push button and fuses for control circuits

**CONSTRUCTION and FINISH**

- Comonents 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**

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

**GENERATING SET 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.

**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
- Engine block heater control.
- Controls; stop, manuel, 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

#### GENERATOR

- Voltage (L-L, L-N)
- Current (L1-L2-L3)
- Frequency
- Earth current
- kW
- Pf
- kVA<sub>r</sub>
- kWh, kVA<sub>h</sub>, kVA<sub>r</sub>h
- Phase sequence

#### MAINS

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

#### WARNING

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

#### PRE-ALARMS

- Low oil pressure



High engine temperature  
Low engine temperature  
Over /Under speed  
Under/over generator frequency  
Under/over generator voltage  
ECU warning  
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  
ELECTRICAL TRIP  
Earth fault  
kW over load  
Generator over current  
Negative phase sequence

#### **Options**

High oil temperature shut down  
Low fuel level shut down  
Low fuel level alarm  
High fuel level alarm  
EXPANSION MODULES  
Editional 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

#### **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 SPECIFICATIONS

- Water cooled, Diesel engine
- Radiator with mechanical fan
- Protective grille for rotating and hot parts
- Electric starter and charge alternator
- Starting battery (with lead acid) including rack and cables
- Engine coolant heater
- Base frame design incorporates an integral fuel tank and anti-vibration isolators
- Flexible fuel connection hoses
- Single bearing, class H alternator
- Industrial exhaust silencer and steel bellows supplied separately(for open sets)
- Static battery charger
- Manual for application and installation

### OPTIONAL EQUIPMENTS

#### TRANSFER SWITCH

- Motor Switch
- Four Pole Contactor
- Three Pole Contactor

#### OTHER ACCESSORIES

- Trailer
- Inlet and outlet acoustic baffles
- Inlet and outlet motorised louvers
- Tool kit for maintenance
- Automatic transfer switch
- Main Fuel Tank
- Supplied with oil and coolant - 30 °C
- Electrical oil drain pump
- Manual oil drain pump
- Automatic or manual fuel filling system
- Low and high fuel level alarm



- Duct adapter ( on radiator)
- Enclosure: weater protective or sound attenuated

- Residential silencer

#### CONTROL SYSTEM

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

#### Parallel )

- Remote relay output
- Remote annunciator panel

#### ENGINE

- Oil heater
- Fuel-Water Seperator Filter

#### ALTERNATOR

- PMG excitation + AVR
- Main line circuit breaker
- Anti-Condensation Heater
- Over sized alternator

#### AKSA CERTIFICATES

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