

## 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 (m <sup>3</sup> /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)

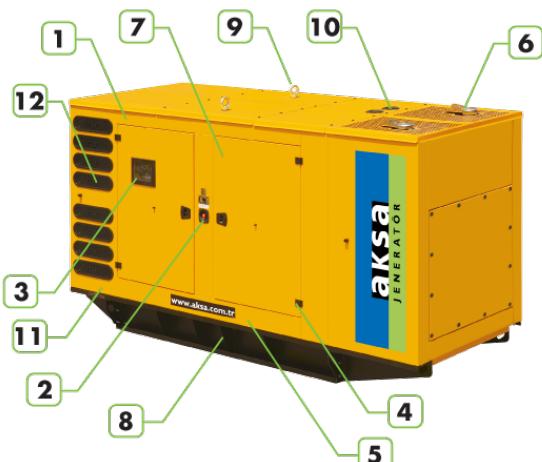
LENGTH 4434

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.

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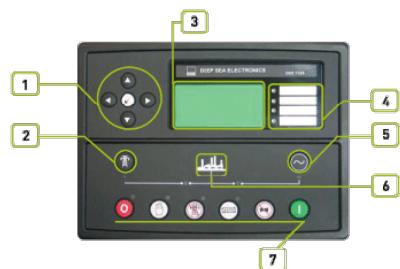
Sound-attenuated and weather protective enclosures for generating sets from Aksa, meet even the sound requirements and provide optimum protection from inclement weather and development by our specialist acoustic engineers. Our modular designed sound insulated canopies provide ease of access for servicing 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



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

#### Devices

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

#### 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

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, manual, auto, test, start, mute lamp 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

kVAr

kWh, kVAh, kVArh

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

Editorial 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: weather 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 Separator 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

