

**Denyo®**

**SOUNDPROOF DIESEL GENERATING SETS**

# **DCA-Series**

**Low Emission Type : 125kVA ~ 500kVA**

**Powerful & Eco friendly**



**Denyo Co., Ltd**

## High Performance

Thanks to their reinforced coils, Denyo's generators have a large negative phase capacity with little wave distortion, even on the rectifier load. They supply electricity with the same quality as commercial power supply and can even handle inverter load, thyristor load, computer control load, event lighting, precision instruments, and measurement equipment.

Generators are also available in trailer mobile versions and primary and emergency use types. Backed by cutting-edge original technology, Denyo's generators are durable, energy efficient and soundproof.

**TEMPERATURE RISE :** 100°C temperature rise at 40°C ambient (JEC2130)

**INSULATION :** ClassF (JEC2130) .

**VOLTAGE REGULATION :** Within  $\pm 0.5\%$  ( except DCA-400ES )

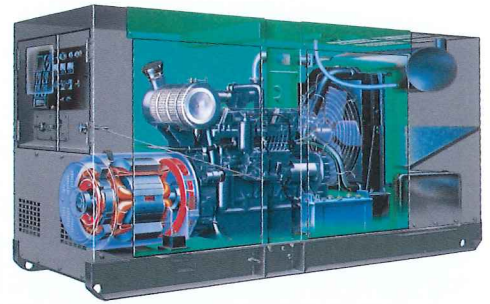
**FREQUENCY REGULATION:** Within 5.0% through no-load to full-load.

**VOLTAGE WAVEFORM :** Deviation Factor of open-circuit terminal voltage does not exceed 0.06. Telephone Influence Factor (TIF) is less than 50.

### ELECTROMAGNETIC INTERFERENCE

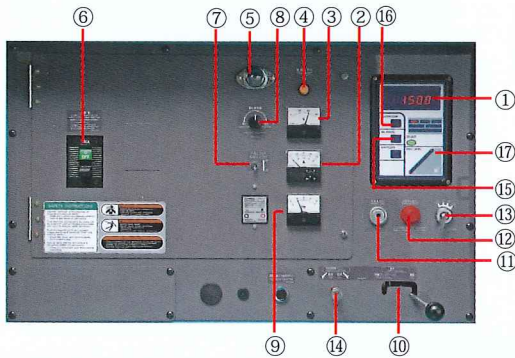
LEVEL : Attenuated to meet most commercial requirements.

**INSULATION RESISTANCE :** Higher than 3 Mega-ohms, measured between armature windings and earth, field windings and earth, field control circuit and earth.



## User Friendly

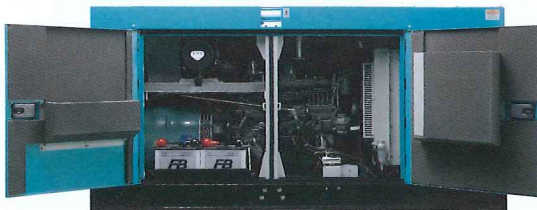
### FULLY APPOINTED CONTROL PANELS FOR EASE OF USE AND MONITORING GENERATOR PERFORMANCE.



- |                      |                                    |
|----------------------|------------------------------------|
| ① Tachometer         | ⑩ Throttle Lever                   |
| ② AC Ammeter         | ⑪ Preheat Lamp                     |
| ③ Voltmeter          | ⑫ Emergency Stop Button            |
| ④ Pilot Lamp         | ⑬ Starter Switch                   |
| ⑤ Panel Light        | ⑭ Frequency Adjust Screw           |
| ⑥ Circuit Breaker    | ⑮ Warning Lamp (Oil Pressure)      |
| ⑦ Panel Light Switch | ⑯ Warning Lamp (Water Temperature) |
| ⑧ Voltage Regulator  | ⑰ Fuel Gauge                       |
| ⑨ Frequency Meter    |                                    |

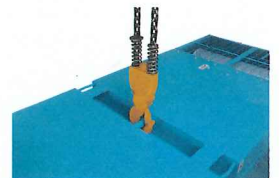
### MAINTENANCE MADE SIMPLER

- All daily maintenance requirements can be performed from one side of the machine. The large doors give you full access to the engine.
- External drain plugs for oil, fuel and water are fitted for convenience in performing routine maintenance.
- Large fuel gauge is fitted for simple viewing.
- For major engine overhauls, the bonnet can be simply unbolted, which allows full access to the engine.



### TRANSPORTABILITY

- The new designs of the DCA Series range have achieved significant size and weight reductions over previously produced models, through improvements in coupling techniques and alternator design.
- The sturdy weatherproof steel bonnet on a heavy-duty steel skid base allows easy handling by a forklift.
- The balance point lifting hook (lug) fitted on the roof of each machine facilitates easy transportation using a crane.
- All models are modular designed, so that generators can be stacked, thereby making the best use of your valuable storage area.



## Safety Devices

Provision of Various Protective Devices and Warning Lamps

- A circuit breaker is provided to protect the generator from shorting of the load circuit or an overload.
- An emergency stop device is provided to automatically detect an engine malfunction and shut down the unit, as well as a warning lamp.

| Item                      | Operation Display | Engine Stop | Load Interrupt | Malfunction Display |    |
|---------------------------|-------------------|-------------|----------------|---------------------|----|
| Low oil pressure          |                   | ○           | —              | ○                   |    |
| High water temperature    |                   | ○           | —              | ○                   |    |
| Over-current              |                   | —           | ○              | —                   |    |
| Electric leakage          |                   | —           | ○              | ○                   |    |
| Insufficient charging     |                   | ○           | —              | ○                   | *1 |
| Low fuel level            |                   | —           | —              | ○                   |    |
| Plugging of air cleaner   |                   | —           | —              | ○                   | *2 |
| Rise in fuel filter level |                   | —           | —              | ○                   | *3 |
| Over-speed                |                   | ○           | —              | — (○*5)             | *4 |

○ : Operates — : Does not operate

# SPECIFICATION TABLE

| MODEL | DCA-125ESK | DCA-220ESK | DCA-300ESK | DCA-400ESK | DCA-500ESK |
|-------|------------|------------|------------|------------|------------|
|-------|------------|------------|------------|------------|------------|

## ALTERNATOR

|                    |            |   |                                         |     |     |     |     |             |     |     |             |     |
|--------------------|------------|---|-----------------------------------------|-----|-----|-----|-----|-------------|-----|-----|-------------|-----|
| Frequency          |            | H | 50                                      | 60  | 50  | 60  | 50  | 60          | 50  | 60  | 50          | 60  |
| Output Rating(kVA) | Continuous |   | 100                                     | 125 | 200 | 220 | 270 | 300         | 350 | 400 | 450         | 500 |
|                    | Standby    |   | 110                                     | 138 | 220 | 242 | 297 | 330         | 385 | 440 | 495         | 550 |
| No.of Phases       |            |   | 3-Phase,4-Wire                          |     |     |     |     |             |     |     |             |     |
| Rated Voltage*1    |            |   | ①Dual Voltage                           |     |     |     |     |             |     |     |             |     |
| Power Factor       |            |   | 0.8(Lagging)                            |     |     |     |     |             |     |     |             |     |
| Voltage Regulation |            |   | Within ±0.5                             |     |     |     |     | Within ±1.0 |     |     | Within ±0.5 |     |
| Excitation         |            |   | Brushless,Rotating Exciter(With A.V.R.) |     |     |     |     |             |     |     |             |     |
| Insulation         |            |   | Class F                                 |     |     |     |     |             |     |     |             |     |

## ENGINE

|                             |                                                  |             |            |                       |          |          |          |                      |          |                       |          |
|-----------------------------|--------------------------------------------------|-------------|------------|-----------------------|----------|----------|----------|----------------------|----------|-----------------------|----------|
| Make&Model                  | Komatsu SAA6D102E-2-A                            |             |            | Komatsu SAA6D125E-2-B |          |          |          | Komatsu SA6D140E-3-A |          | Komatsu SAA6D140E-3-B |          |
| Type                        | Inlined,Direct Injected,Turbocharged,Aftercooled |             |            |                       |          |          |          |                      |          |                       |          |
| Output Rating               | kW/min <sup>-1</sup>                             | 97.8/1500   | 115.5/1800 | 178/1500              | 204/1800 | 232/1500 | 257/1800 | 310/1500             | 357/1800 | 382/1500              | 427/1800 |
| No.of Cylinders-Bore×Stroke | mm                                               | 6-102 × 120 |            | 6-125 × 150           |          |          |          | 6-140 × 165          |          |                       |          |
| Piston Displacement         | L                                                | 5.88        |            | 11.04                 |          |          |          | 15.24                |          |                       |          |
| Fuel                        | ASTM No. 2 Diesel Fuel or Equivalent             |             |            |                       |          |          |          |                      |          |                       |          |
| Fuel Consumption*2          | L/h                                              | 16.3        | 21.0       | 31.9                  | 35.7     | 39.0     | 47.0     | 56                   | 65.1     | 65.8                  | 75.9     |
| Lube Oil Sump Capacity      | L                                                | 22          |            | 42                    |          | 62       |          | 79                   |          | 91.5                  |          |
| Coolant Capacity            | L                                                | 26.4        |            | 37.9                  |          | 44.4     |          | 67.5                 |          | 88                    |          |
| Battery×Quantity            |                                                  | 95E41R × 2  |            | 145G51 × 2            |          |          |          | 190H52×2             |          |                       |          |
| Fuel Tank Capacity          | L                                                | 250         |            | 380                   |          | 490      |          |                      |          |                       |          |

## UNIT

|            |           |      |      |      |      |              |
|------------|-----------|------|------|------|------|--------------|
| Dimensions | Length mm | 3000 | 3700 | 4000 | 4200 | 5380(4900)*3 |
|            | Width mm  | 1080 | 1300 | 1400 | 1400 | 1650         |
|            | Height mm | 1500 | 1750 | 1800 | 2100 | 2100         |
| Dry Weight | kg        | 2130 | 3770 | 4320 | 5470 | 7220         |

## SOUND LEVEL

|                                                |    |    |    |    |    |    |    |    |    |    |
|------------------------------------------------|----|----|----|----|----|----|----|----|----|----|
| 7m dB (A) 1500/1800 rpm (min <sup>-1</sup> )*4 | 60 | 63 | 63 | 66 | 66 | 69 | 65 | 67 | 66 | 69 |
|------------------------------------------------|----|----|----|----|----|----|----|----|----|----|

\*1 Rated Voltage Classification

\*5

\*2 Fuel consumption is based on operation at 75% load.

\*3 Sound unit lengths are with visor. (without visor)

\*4 Sound level reflects high-speed no-load operation and is calculated by averaging the measurements at four points, each 7 meters from the source.

\*5 Depending on location and area, output voltage may differ from values listed in catalog.

| Frequency | 50Hz                 | 60Hz                 |
|-----------|----------------------|----------------------|
| ①         | 190~220V<br>380~440V | 190~240V<br>380~480V |

( ) indicates options.



DCA-125ESK



DCA-220ESK



DCA-300ESK



DCA-400ESK



DCA-500ESK

# Options

## Remote Control Devices

The engine generator can be remotely changed from low speed to high speed operation, started and stopped, and otherwise controlled. The ability to perform these procedures automatically or manually at the location where work is being performed when the engine generator is separated by a considerable distance provides high fuel and oil savings, extends engine life substantially, and leads to a surprising level of reduction in manpower and energy requirements. In addition, this also minimizes noise and exhaust gas discharge levels, and in turn helps improve the worksite environment.

## Automatic Idling Device or Slowdown Device

### Automatic Idling Device (For DCA-220ESK to 500ESK)

This device automates warm-up operation when the engine is started. The addition of a remote-control box allows remote changeover between low-speed and high-speed operation.

(Please note that the engine cannot be started and stopped with the remote-control box.)

### Remote Controller (For DCA-220ESK to 500ESK)

This device allows the engine starting/stopping and automatic idling function (idling when engine is started) to be operated from a remote location. In addition to a switch for changeover between high-speed and low-speed operation, the remote-control box has a high-speed/low-speed operation indicator lamp, a startup warning lamp (comes on when generator set is not started up using normal remote controller operation), and a malfunction indicator lamp (illuminated when the emergency stop device is triggered)



## Automatic Oil Lubrication Device

(For DCA-220ESK to DCA-500ESK)

This system automatically maintains engine oil at the proper level, making it possible to reduce costs for oil-related maintenance, and eliminates the need to check the engine oil level.



## Salt Corrosion Specifications

(For DCA-125,220, provided as standard feature for DCA-300 and above)

These specifications are designed for when the unit will be used on the coast or on the ocean, and include treatment to prevent insulation resistance from dropping, and corrosion resistant treatment of the parts.

## Trailer

Trailers can be fitted to generators to facilitate on-site movement. Bolt connectors make mounting and dismounting simple.



## Parallel Operation Device

A variety of optional devices are available to change from manual parallel operation to the desired type of automatic operation. Select the desired option from the table below according to the power supply application, site conditions and other factors.

| Operation<br>Method                                                                   | Engine<br>Starting /<br>Stopping | Synchronization<br>Verification/<br>Activation | Load<br>Sharing | Remarks                                                                |
|---------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------|-----------------|------------------------------------------------------------------------|
| Manual Parallel<br>Operation Device                                                   | Manual                           | Manual                                         | Manual          | Standard feature for<br>DCA-220 to 1100                                |
| Automatic Load<br>Sharing Device                                                      | Manual                           | Manual                                         | Automatic       | For DCA-220 and above                                                  |
| Automatic Parallel<br>Operation Device                                                | Manual                           | Auto operation<br>with pushbutton              | Automatic       | For DCA-220 and above.<br>Standard feature for<br>DCA-1100SPM, 1100SPC |
| Fully Automatic<br>Parallel Operation<br>Device<br>(with GCP generator<br>controller) | Semi-automatic<br>Automatic      | Automatic                                      | Automatic       | Refer to (4) below for<br>applicable units.                            |

### (1) Manual Parallel Operation Device:

Parallel operation system with unique Denyo AVR equipped with a cross-current compensation circuit (CCR system). This is the most inexpensive system, where no addition equipment is required for the DCA-220ESK and above.

### (2) Automatic Load Sharing Device:

This device operates a governor motor to share the load uniformly among the respective generators when parallel operation is being performed. It facilitates stable parallel operation, and dramatically reduces the workload of monitoring during parallel operation.

### (3) Automatic Parallel Operation Device:

The troublesome synchronization verification and synchronization activation process can be automatically performed by simply pressing a pushbutton. After synchronization is activated, the Automatic Load Sharing Device is capable of performing stable parallel operation.

### (4) Fully Automatic Parallel Operation Device:

High-speed digital control enables all operations from starting and stopping to synchronization verification, synchronization activation and load sharing to be performed at the touch of one button. This device has multiple functions that enable parallel operation of generators with differing capacities, the number of units being operated to be controlled and other operations.

Applicable models: 400ESK, 500ESK

(5) The generator may be classified as a normal use generator according to the Electricity Enterprises Law depending upon the installation and operation procedure. Consult with a sales person for details.

## Other Options

- Reverse power relay (For DCA-220ESK and above.)
- AC power meter (For DCA-220ESK and above.)
- Dual-voltage specifications (For DCA-220ESK to 500.)
- Bearing/stator temperature gauge (For DCA-220ESK and above.)
- Lubricant temperature gauge
- (Provided as standard feature for DCA-220ESK and above)
- Overspeed protection device
- Keyed fuel tank cap
- Mounting of muffler flange



\* Some options may not be available depending upon the model. Confirm the details with a Denyo sales person.

**Denyo**

The Denyo trademark is widely recognized as a brand, and is a registered trademark in 90 countries around the world.

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