

Developing Technology for Tomorrow's Power Needs. **Denyo**

# *DCA-Series*

SINGLE PHASE / THREE PHASE

*DIESEL GENERATING SETS  
SOUNDPROOF TYPE*

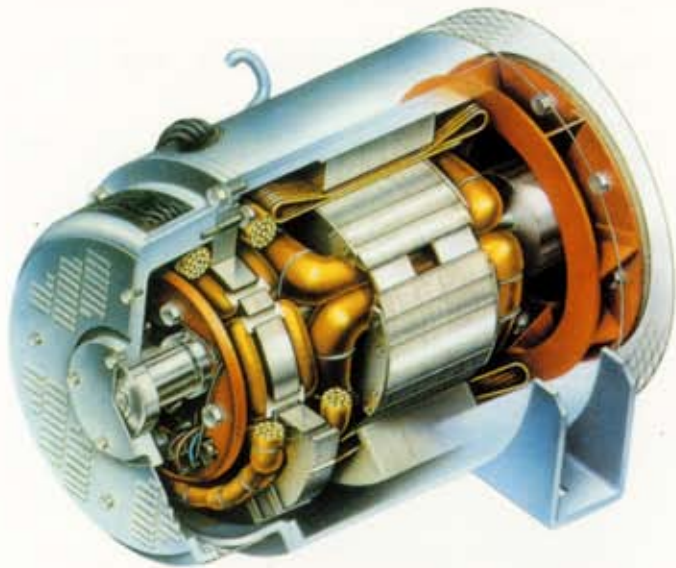


**Denyo Asia Pte Ltd**

## GENERAL CONSTRUCTION

The DCA Series generators are complete, stand alone, generating sets. All models consist of a Denyo alternator which is directly coupled to a diesel engine. The alternator and engine are set on a common skid base. Special vibration isolators are used to minimize vibrations during operation.

The generator and electrical components are fully enclosed in a solid-steel, weatherproof, canopy. Noise suppression is achieved using highly effective sound insulating materials.



## DENYO'S ADVANCED BRUSH-LESS GENERATOR

**DESIGN:** The patented brush-less generator is a rotating-field, self-ventilated, single-bearing, 4-pole synchronous alternator, complete with damper (amortisseur) windings for minimal voltage deviations and to minimize the generator's effect on magnetic/radio waves. This unique design ensures minimum wave-form distortion, minimum reactance and maximum efficiency, which produces high-quality electricity.

**EXCITER:** Brush-less rotating exciter, 3-phase full wave rectified with silicon diodes, designed for maximum motor starting.

**ROTOR:** With fitted parts and windings; dynamically balanced and permanently aligned to the engine by flexible disc coupling

**COOLING:** Direct-drive centrifugal ventilating fan, for ample air flow and noise suppression

## PERFORMANCE FEATURES

### HIGH-PERFORMANCE

The Denyo generating system guarantees the following levels of performance :

- **TEMPERATURE RISE:** 100°C temperature rise at 40°C ambient (JEC 114).
- **INSULATION:** Class F (JEC 114)
- **VOLTAGE REGULATION:** Within  $\pm 1.5\%$ .
- **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 control circuit and earth.
- **DIELECTRIC STRENGTH:** All winding insulation can withstand voltage of 50 or 60Hz, and minimum 1500V for one minute.
- The innovative excitation system\* fitted on all models, in conjunction with the AVR and advanced brush-less generator, provides fast voltage regulation in response to load variations, enabling use soon after startup. This system provides output stability during load variations.

\* U.S. Patent No. 4268788

- Synchronous brush-less alternator for minimal wear.
- Designed to function in all climatic conditions.
- Will safely power the most sensitive load, such as thyristors, invertors and computer systems, without the risk of damage to these loads, thanks to the high level electrical characteristic of the generator's output.

### UNSURPASSED FLEXIBILITY

#### ● TRUE HEAVY-DUTY PERFORMANCE

For a particular job, you may need that extra power from your generator. With the DCA Series, the standby power rating can be used continuously for 1 hour in every 8 hours of continuous operation. This extra power performance of Denyo generators means you can get the job done, without the inconvenience of using another generator.

#### ● 50Hz/60Hz OPERATION

The DCA Series can be operated at either 50Hz or 60Hz. by simply adjust the engine speed using the throttle control knob on the control panel.

## AUTO FUEL AIR EXTRACTOR

Air trapped in the fuel system can be troublesome. However, with the DCA Series, fuel air extraction is automatically performed by simply operating the starter switch, without other tools or devices. There is no soiling the machine's interior or the operator's hands and the outflow of fuel to the machine's exterior is prevented. The machine will start after the engine is turned over several times.

## ENVIRONMENTAL FRIENDLY

### • EXTREMELY QUIET OPERATION

In urban areas and at the worksite, there is an ever increasing demand for reduced noise pollution. In response to these concerns, Denyo has pioneered a soundproof range of generators. The DCA Series generators are extremely quiet when operating at full load, even though all soundproof models are compactly designed.

### • USE OF CLEAN ENGINES

The Engines used in these generators meet the Californian Atmospheric Pollution, which is one of the world's most stringent anti-pollution standards.

This is achieved by these engines using a PVC (Purge Control Valve) system. Therefore, these engines do not discharge blow-by gas to the outside, which keeps the interior of the machine cleaner and exhaust emissions are minimized

## ECONOMICAL PERFORMANCE

- Easy starting and quick response
- Utilising highly reliable diesel engines with low fuel consumption, manufactured by Japan's leading engine manufacturer.
- Uninterrupted generator operation for up to 12 hours under full load.

## MAINTENANCE MADE SIMPLER

All daily maintenance requirements can be performed from one side of the machine. The large doors gives you full access to the engine.

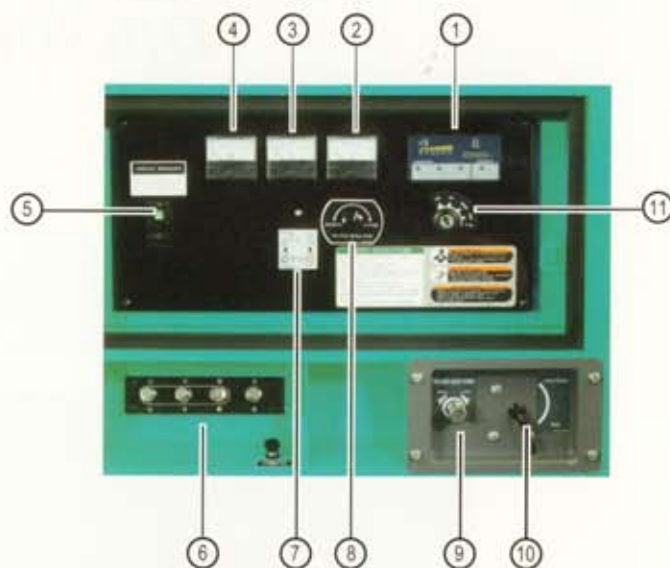
External drain plugs for oil, fuel and water are fitted for convenience in performing routing maintenance.

For major engine overhauls, the canopy (bonnet) can be simply unbolted, which allows full access to the engine.

## DENYO GENERATORS: DESIGNED TO BE TOTALLY USER-FRIENDLY

## MONITORING GENERATOR PERFORMANCE

### DCA-13ESK



- ① Engine Monitor (Fuel level indicator, Hour Meter, Warning Lamp, Preheat Lamp)
- ② AC Voltmeter ③ AC Ammeter ④ Frequency meter ⑤ Circuit breaker
- ⑥ Output Terminal ⑦ Earth Leakage Relay (Option) ⑧ Voltage Regulator
- ⑨ Frequency Adjust Screw ⑩ Throttle Lever ⑪ Starter Switch

## AUTO-PROTECTION

To protect the generator from malfunctions, a warning lamp and an in-built emergency system to detect low oil pressure, high water temperature and charging failure, are standard. If these abnormalities are detected, the warning lamp will light up and the engine will come to an emergency stop. There is also an emergency shut-down in the event of AC overload, with the use of circuit breaker.

## TRANSPORTABILITY

- The sturdy weatherproof steel canopy 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

# SPECIFICATION TABLE

MODEL	SINGLE PHASE TYPE						THREE PHASE TYPE					
	DCA-10ESX-DA	DCA-18ESX-DA	DCA-25SPX-DA		DCA-13ESK-DA	DCA-15ESK-DA	DCA-25ESK-DA	DCA-35SPK-DA				

## ■ ALTERNATOR

Frequency (Hz)	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Output Rating (KVA)	Continuous	8	10	14	18	20	25	10.5	13	12.5	15	20	25	30	35
	Standby	8.8	10.8	15	19	22	27.5	11.5	14	13.5	16.5	22	27.5	31.5	36.8
No. of Phases	Single-Phase, 2 - Wire						3 - Phase, 4 - Wire								
Rated Voltage (V)	50Hz: 200/220 60Hz: 200/240						50Hz: 190~220 or 380~440 60Hz: 190~240 or 380~480								
Power Factor	1.0						0.8								
Voltage Regulation (%)	Within $\pm 1.0$						Within $\pm 1.5$								
Excitation	Brushless, Rotating Exciter (whit A.V.R.)														
Insulation	Class F														

## ■ ENGINE

Make & Model	Kubota D 1403-EB		Kubota V2203-EB		Kubota V3300-EBG		Kubota D1403-EB		Kubota D1703-EB		Kubota V2203-EB		Kubota V3300-EBG		
Type	Inlined, Swirl Chamber Type														
Output Rating	PS/min <sup>-1</sup>	13.9/1500	16.9/1800	25.0/1500	32.2/1800	35.3/1500	43.0/1800	13.9/1500	16.9/1800	16.9/1500	20.0/1800	25.0/1500	32.2/1800	35.3/1500	43.0/1800
	KW/min <sup>-1</sup>	10.2/1500	12.4/1800	18.4/1500	23.7/1800	26.2/1500	32.1/1800	10.2/1500	12.4/1800	12.4/1500	14.7/1800	18.4/1500	23.7/1800	26.2/1500	32.1/1800
No. of Cylinders-Bore X Stroke (mm)	3 - 80 X 92.4		4 - 87 X 92.4		4 - 98 X 110		3 - 80 X 92.4		3 - 87 X 92.4		4 - 87 X 92.4		4 - 98 X 110		
Piston Displacement (L)	1.393		2.197		3.318		1.393		1.647		2.197		3.318		
Fuel	ASTM No. 2 Diesel Fuel or Equivalent														
Fuel Consumption (L/h)	2.3	2.9	3.6	4.6	5.1	6.3	2.4	2.9	2.8	3.4	3.9	4.9	5.8	6.9	
Lube Oil Sump Capacity (L)	5.6		7.6		13.2		5.6		7.6		13.2				
Coolant Capacity (L)	6.4		7.9		9.0		6.4		7.9		9.0				
Battery Capacity (V-Ah)	12 - 60 X 1pc				12 - 95 X 1pc		12 - 60 X 1pc				12 - 95 X 1pc				
Fuel Tank Capacity (L)	62				82		62				82				

## ■ UNIT

Dimensions(mm)	Length	1390	1540	1900	1390	1390	1540	1900
	Width	650	650	860	650	650	650	860
	Height	900	900	990	900	900	900	990
Dry Weight	kg	503	591	890	503	516	591	890

## ■ SOUND LEVEL

7m/dB (A) 1500/1800rpm (min <sup>-1</sup> )	60.0	62.2	61.7	65.7	60.5	63.4	59.1	61.7	60.2	63.0	61.7	65.7	60.5	63.4
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- Continuous output rating applies to operation under standard conditions as per JIS B8014.
- Standby output rating applies to intermittent or emergency operation for approximately 1 hour as per JIS B8014.
- Fuel consumption is based on operation at 75% load
- Sound level reflects high-speed no-load and is calculated by averaging the measurements at four points, each 7 meters from the source.
- Colors of products would be different from printed ones of catalogues.
- Specifications given herein are subject to change without notice

Direct inquiry to the nearest Denyo distributor or to Denyo Asia Pte Ltd

 **Denyo Asia Pte Ltd**

27 Pioneer Sector 1, Jurong, Singapore 628433  
Tel: (65) 6861 0058 Fax: (65) 6796 9067