

**Denyo**<sup>®</sup>

**SOUNDPROOF DIESEL GENERATING SETS**

# **DCA Series**

Powerful & Quiet



**Denyo Co., Ltd.**

# DENYO POWER GENERATORS are partners of our civil life

Denyo power generators are capable of generating power in various situations where public power supply is not available. They contribute to build infrastructure of society and are highly appreciated by customers all over the world. In a variety of situations like civil engineering works and construction works to build infrastructure of our society.

Denyo engine power generators are capable of providing power at various sites where power is required like civil work and construction sites as well as are also employed in various facilities as emergency power source for critical equipment like medical equipment in hospital, bank online system and traffic signals etc.



As the power source in the area where electricity is unavailable.



As the power source in the construction site.



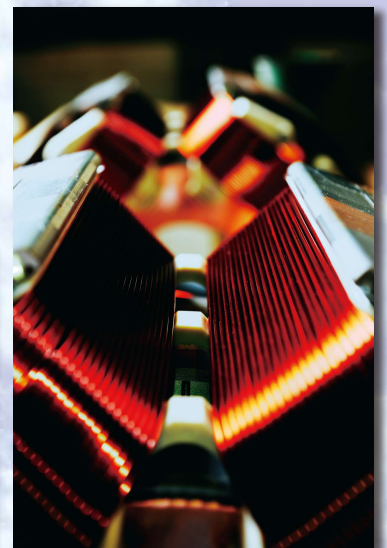
As the Emergency power source in the hospital.

## GENERAL CONSTRUCTION

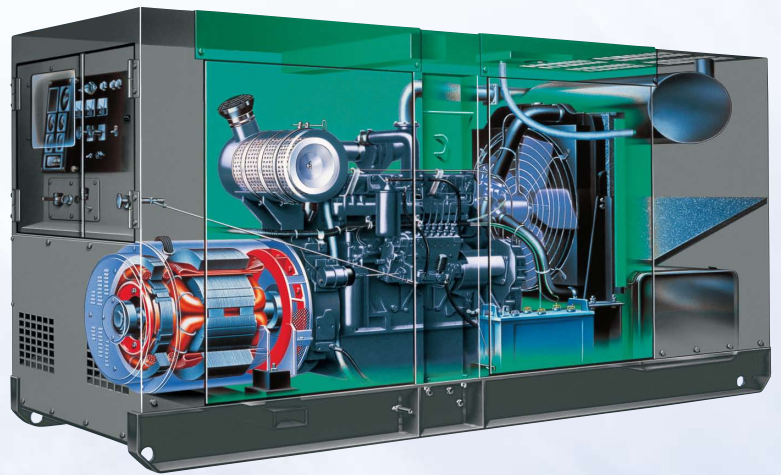
The DCA Series generators are complete, stand alone generating sets. All models consist of a Denyo alternator which is directly coupled to a diesel engine. The alternator and engine are set on a common skid base. Special vibration isolators are used to minimise vibrations during operation.

The generator and electrical components are fully enclosed in a solid-steel, weatherproof bonnet.

Noise suppression is achieved using highly effective sound insulating materials.



# PERFORMANCE FEATURES



## HIGH-PERFORMANCE

**The Denyo generating system guarantees the following levels of performance:**

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

**INSULATION :** ClassF (JEC2130).

**VOLTAGE REGULATION :** Within  $\pm 0.5\%$   
( except DCA-400SP, 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.

● The innovative excitation system\* fitted on all models, in conjunction with the AVR and advanced brushless generator, provides fast voltage regulation in response to load variations, enabling use soon after start up. This system provides output stability during load variations.

\*U.S. Patent No. 4268788

● Synchronous brushless alternator for minimal wear.

● Designed to function in all climatic conditions.

● Will safely power the most sensitive loads, such as thyristors, invertors and computer systems, without the risk of damage to these loads, thanks to the high level electrical characteristics of the generator's output.

## ECONOMICAL PERFORMANCE

● Easy starting and quick response.

● Utilising highly reliable diesel engines with low fuel consumption, manufactured by Japan's leading engine manufacturers.

● Uninterrupted generator operation for up to 12 hours under 75% load.

## UNSURPASSED FLEXIBILITY

**To meet today's varying needs successfully, your equipment must be as flexible as you are. The Denyo DCA Series generator range provides you with the flexibility to get the job done simply and economically, without any delays.**

### 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 (110% or 105% load except DCA-610SPM) 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.

### PARALLEL OPERATION FEATURE

( except for DCA-100 below )

From time to time, at a construction site, mine site or in other situations, a large temporary power supply is required for a particular job. To meet this requirement Denyo's DCA Series generators incorporate a built-in parallel operation drive system, allowing you to create a large-capacity generating plant on-site, without the need to procure any other equipment.

### DUAL VOLTAGE SYSTEM

( optional for DCA-25USI2, 45ESH, 45USI2, 60ESH, 60USH )

For companies that operate internationally or have motors that require power at different voltages, a different generator is usually required for each voltage setting. However, the DCA Series generators are equipped with a dual voltage system, so one generator can be used to power motors with different voltage settings. An extremely convenient feature.

### ALL MODELS CAN RUN AT 50Hz/60Hz

Simply adjust the engine speed on the control panel to use a DCA Series generator at either 50 Hz or 60 Hz.

### 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 and super soundproof range of generators. The DCA Series generators are extremely quiet when operating at full load, even though all soundproof models are compactly designed. Check the specifications for the sound level of each model.

# DENYO GENERATORS: DESIGNED TO BE TOTALLY USER-FRIENDLY

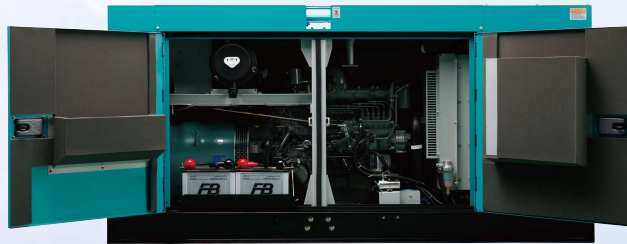
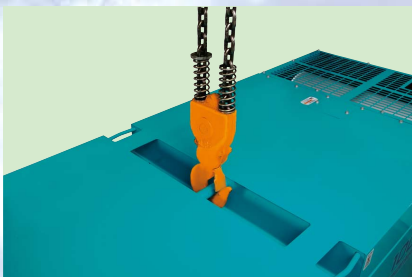
## MAINTENANCE MADE SIMPLER

- 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 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.



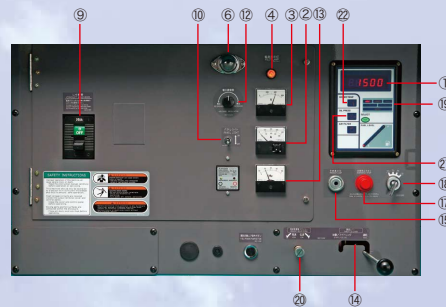
## TRANSPORTABILITY

- 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.



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

- |                                      |                           |
|--------------------------------------|---------------------------|
| ① Tachometer                         | ⑫ Voltage Regulator       |
| ② AC Ammeter                         | ⑬ Frequency Meter         |
| ③ AC Voltmeter                       | ⑭ Throttle Handle         |
| ④ Pilot Lamp                         | ⑮ Preheat Lamp            |
| ⑤ Voltmeter Change-Over Switch       | ⑯ Battery Switch          |
| ⑥ Panel Light                        | ⑰ Emergency Stop Button   |
| ⑦ Synchronizing Lamp                 | ⑱ Starter Switcr          |
| ⑧ Single Parallel Change-Over Switch | ⑲ Warning Lamp Unit       |
| ⑨ Circuit Breaker                    | ⑳ Charging Ammeter        |
| ⑩ Panel Light Switch                 | ㉑ Oil Pressure Gauge      |
| ⑪ Ammeter Change-Over Switch         | ㉒ Water temperature Gauge |



## 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	○	—	—	○
Low fuel level	—	—	—	○
Plugging of air cleaner	—	—	—	○
Rise in fuel filter level	—	—	—	○
Over-speed	○	—	—	—(○)*5

O: Operates —: Does not operate

\*1 Only for 13 to 35. (Engine stopped/malfunction display not provided for 25ES1,45 – 150ESH, US series.)

\*2 Excluding 13 – 20LS,25ESK.

\*3 Only for 25ES1,45ES1,25US12,45US12.

\*4 Only for 60ES12,600SPK,800SPK,800SPM,1100SPM,1100SPC.

\*5 Only for 60ES12

# SPECIFICATION TABLE (13kVA~45kVA CLASS SOUNDPROOF TYPE)

MODEL	DCA-13LSK	DCA-13LSY	DCA-15LSK	DCA-20LSK	DCA-25ESK	DCA-25ESI	DCA-35SPK	DCA-45ESI	DCA-45ESH
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## ALTERNATOR

Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60
Output Rating(kVA)	Continuous	10.5	13	10.5	13	12.5	15	17	20	20	25	20	25	30	35	37	45	37	45
	Standby	11	13.7	11.5	14	13.8	16.5	18.7	22	22	27.5	22	27.5	31.5	36.75	38.9	47.3	38.9	47.3
No. of Phases		3-Phase, 4-Wire																	
Rated Voltage*1	V	① or ③ Single Voltage						② Dual Voltage			① or ③ Single Voltage			② Dual Voltage			④ Single Voltage (Dual Voltage is an option)		
Power Factor		0.8 (Lagging)																	
Voltage Regulation	%	Within ±0.5																	
Excitation		Brushless, Rotating Exciter (With A.V.R.)																	
Insulation		Class F														Class H		Class F	

## ENGINE

Make&Model		Kubota D1403-K3A	Yanmar 3TNV84-G	Kubota D1703-K3A	Kubota V2203-K3A	Kubota V2203-KB	Isuzu AA-4LE2	Kubota V3300-EB	Isuzu BB-4JG1T	Hino W04D-K									
Type		Inlined, Swirl Chambered	Inlined, Direct Injected	Inlined, Swirl Chambered			Inlined, Direct Injected	Inlined, Swirl Chambered	Inlined, Direct Injected, Turbocharged	Inlined, Direct Injected									
Output Rating	PS/rpm	13.7/1500	16.9/1800	15.3/1500	18.3/1800	16.9/1500	20/1800	21.5/1500	25.6/1800	25/1500	32.2/1800	26/1500	32/1800	38.5/1500	44.1/1800	46.5/1500	56/1800	46.5/1500	57/1800
	kW/min <sup>-1</sup>	10.2/1500	12.4/1800	11.3/1500	13.5/1800	12.4/1500	14.7/1800	15.8/1500	18.8/1800	18.4/1500	23.7/1800	19.1/1500	23.5/1800	28.3/1500	32.4/1800	34.2/1500	41.2/1800	34.2/1500	41.9/1800
No. of Cylinders-Bore×Stroke	mm	3-80×92.4		3-84×90		3-87×92.4		4-87×92.4		4-87×92.4		4-85×96		4-98×110		4-95.4×107		4-104×118	
Piston Displacement	L	1.393		1.496		1.647		2.197		2.197		2.179		3.318		3.059		4.009	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent																	
Fuel Consumption*2	L/h	2.4	2.9	2.1	2.6	2.8	3.4	3.6	4.3	3.9	4.9	3.3	4.2	5.8	6.9	6.3	7.8	6.5	8.0
Lube Oil Sump Capacity	L	5.6		6.7		5.6		7.6		7.6		8.5		13.2		10		16.5	
Coolant Capacity	L	6.4		3.9		6.4		7.9		7.9		6.6		10.5		10.9		12.2	
Battery×Quantity		80D26R×1						95D31R×1						80D26R×2					
Fuel Tank Capacity	L	62						70						82					
														100					

## UNIT

Dimensions	Length mm	1390	1390	1390	1540	1540	1540	1900	1900	2000
	Width mm	650	650	650	650	650	650	680	860	880
	Height mm	900	900	900	900	900	900	900	990	1250
Dry Weight	kg	503	490	516	580	591	564	890	960	1180

## SOUND LEVEL

7m dB (A) 1500/1800 rpm (min <sup>-1</sup> )*3	58	61	61	62	60	63	61	64	62	64	60	64	60	63	60	62	59	61
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\*1 Rated Voltage Classification

Frequency	50Hz	60Hz
①	190~220V	200~240V
②	190~220V 380~440V	190~240V 380~480V
③	380~440V	380~480V
④	190~220V (380~440V)	200~240V (380~480V)

( ) indicates options.

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

\*3 Sound level reflects high-speed no-load operation and is calculated by averaging the measurements at four points, each 7 meters from the source.

\*4 Depending on location and area, output voltage may differ from values listed in catalog.



DCA-13LSK



DCA-15LSK



DCA-20LSK



DCA-25ESI



DCA-45ESH

# SPECIFICATION TABLE (60kVA~150kVA CLASS SOUNDPROOF TYPE)

MODEL	DCA-60ESH	DCA-60ESI2	DCA-75SPI	DCA-100ESI	DCA-125ESM	DCA-125SPK3	DCA-150ESH	DCA-150ESK	DCA-150ESM
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## ALTERNATOR

Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Output Rating(kVA)	Continuous	50	60	50	60	65	75	80	100	100	125	100	125	125	150	125	150	125	150	
	Standby	55	66	55	66	68.3	78.8	88	110	110	138	110	138	138	165	138	165	138	165	
No. of Phases		3-Phase, 4-Wire																		
Rated Voltage*1	V	① Single Voltage (Dual Voltage is an option)						② Dual Voltage												
Power Factor		0.8 (Lagging)																		
Voltage Regulation	%	Within ±0.5																		
Excitation		Brushless, Rotating Exciter (With A.V.R.)																		
Insulation		Class F	Class H						Class F											

## ENGINE

Make&Model	Hino W04D-TG	Isuzu BB-4BG1T	Isuzu A-6BG1	Isuzu DD-6BG1T	Mitsubishi 6D16-TLE2D	Komatsu SA6D102E-1-A	Hino JO8C-UD	Komatsu SAA6D102E-2-D	Mitsubishi 6D16-TLE2D										
Type	Inlined, Direct Injected, Turbocharged				Inlined, Direct Injected		Inlined, Direct Injected, Turbocharged, Aftercooled												
Output Rating	PS/rpm	66/1500	78/1800	65/1500	77/1800	80/1500	93/1800	100/1500	124/1800	145/1500	166/1800	133/1500	157/1800	153/1500	183/1800	153/1500	183/1800	153/1500	183/1800
	kW/min <sup>-1</sup>	48.5/1500	57.4/1800	47.9/1500	57.1/1800	58.8/1500	68.4/1800	73.6/1500	91.3/1800	107/1500	122/1800	97.8/1500	115.5/1800	113/1500	135/1800	113/1500	135/1800	113/1500	135/1800
No. of Cylinders-Bore×Stroke	mm	4-104×118	4-105×125	6-105×125	6-105×125	6-118×115	6-102×120	6-114×130	6-102×120	6-118×115	6-102×120	6-114×130	6-102×120	6-118×115	6-102×120	6-118×115	6-102×120	6-118×115	6-118×115
Piston Displacement	L	4.009	4.329	6.494	6.494	7.540	5.880	7.961	5.880	7.540	5.880	7.961	5.880	7.961	5.880	7.961	5.880	7.961	5.880
Fuel		ASTM No. 2 Diesel Fuel or Equivalent																	
Fuel Consumption*2	L/h	8.8	10.6	8.7	11.0	10.8	12.5	13.5	17.4	16.5	20.7	15.5	20.1	19.3	23.9	20.6	25.0	19.8	24.0
Lube Oil Sump Capacity	L	16.5	13.2	19.3	22.4	16	22	24.5	22	16	22	24.5	22	16	22	24.5	22	16	22
Coolant Capacity	L	12.2	15.4	22.9	22.0	26.3	23.9	22.9	26	26.3	23.9	22.9	26	26.3	23.9	22.9	26	26.3	23.9
Battery×Quantity		80D26R×2	120E41R×1	95E41R×2	95D31R×2	95E41R×2	95D31R×2	95E41R×2	95D31R×2	95E41R×2	95D31R×2	95E41R×2	95D31R×2	95E41R×2	95D31R×2	95E41R×2	95D31R×2	95E41R×2	95D31R×2
Fuel Tank Capacity	L	125	125	155	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225

## UNIT

Dimensions	Length mm	2050	2200	2630	2750	3280	3000	3200	3250	3350
	Width mm	880	880	1000	1050	1080	1080	1180	1080	1080
	Height mm	1250	1250	1300	1350	1500	1500	1500	1500	1500
Dry Weight	kg	1240	1120	1590	1730	2290	2120	2360	2390	2450

## SOUND LEVEL

7m dB (A) 1500/1800 rpm (min <sup>-1</sup> )*3	61	64	61	64	61	63	59	61	61	66	63	66	61	64	62	65	62	67
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\*1 Rated Voltage Classification \*4

Frequency	50Hz	60Hz
	② 190~220V 380~440V	190~240V 380~480V
④	190~220V (380~440V)	200~240V (380~480V)

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

\*3 Sound level reflects high-speed no-load operation and is calculated by averaging the measurements at four points, each 7 meters from the source.

\*4 Depending on location and area, output voltage may differ from values listed in catalog.

( ) indicates options.



DCA-60ESI2



DCA-100ESI



DCA-125SPK3



DCA-150ESK

# SPECIFICATION TABLE(200kVA~500kVA CLASS SOUNDPROOF TYPE)

MODEL	DCA-220ESM	DCA-220SPK3	DCA-300SPK3	DCA-400ESM	DCA-400SPKII	DCA-500SPK	DCA-500ESM
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## ALTERNATOR

Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60
Output Rating(kVA)	Continuous	200	220	200	220	270	300	350	400	350	400	450	500	450	500
	Standby	220	242	220	242	297	330	385	440	385	440	495	550	495	550
No. of Phases		3-Phase,4-Wire													
Rated Voltage*1	V	②Dual 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	Mitsubishi 6D24-TLE2B	Komatsu S6D125E-2-A		Komatsu SA6D125E-2-A		Mitsubishi S6B3-E2PTAA-3		Komatsu SA6D140-A		Komatsu SA6D170-B		Mitsubishi S6A3-E2PTAA-1			
Type	Inlined,Direct Injected, Turbocharged,Aftercooled	Inlined,Direct Injected, Turbocharged		Inlined,Direct Injected, Turbocharged,Aftercooled											
Output Rating	PS/rpm	246/1500	270/1800	242/1500	277/1800	316/1500	350/1800	420/1500	470/1800	421/1500	485/1800	520/1500	580/1800	519/1500	581/1800
	kW/min <sup>-1</sup>	181/1500	199/1800	178/1500	204/1800	232/1500	257/1800	309/1500	346/1800	310/1500	357/1800	382/1500	427/1800	382/1500	427/1800
No. of Cylinders-Bore×Stroke	mm	6-130×150		6-125×150				6-135×170		6-140×165		6-170×170		6-150×175	
Piston Displacement	L	11.940		11.040				14.600		15.240		23.150		18.560	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent													
Fuel Consumption*2	L/h	33.7	38.1	31.5	35.7	43.6	50.0	54.8	67.4	52.1	60.8	69.5	83.1	67.6	78.3
Lube Oil Sump Capacity	L	37		42		62		85		74		119		100	
Coolant Capacity	L	42		36		37		69.4		64		92.5		114.5	
Battery×Quantity		145G51×2						190H52×2							
Fuel Tank Capacity	L	380				490									

## UNIT

Dimensions	Length mm	3700	3650	3750	4500	4200	5480(5000)*3	5280(4800)*3
Dimensions	Width mm	1300	1300	1400	1400	1400	1650	1650
	Height mm	1750	1750	1800	2100	2100	2400	2400
Dry Weight	kg	3630	3670	4160	5610	5420	8540	7920

## SOUND LEVEL

7m dB (A) 1500/1800 rpm (min <sup>-1</sup> )*4	61	63	63	65	68	71	65	69	67	68	68	71	65	69
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\*1 Rated Voltage Classification

Frequency	50Hz	60Hz
②	190~220V 380~440V	190~240V 380~480V

\*5

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

\*3 Shown 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.

( ) indicates options.



DCA-220ESM



DCA-400ESM



DCA-400SPK II



DCA-500SPK

# SPECIFICATION TABLE (600kVA~1100kVA CLASS SOUNDPROOF TYPE)

MODEL	DCA-600SPV	DCA-600SPK	DCA-610SPM	DCA-800SPK	DCA-800SPM	DCA-1100SPM	DCA-1100SPC
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## ALTERNATOR

Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
Output Rating(kVA)	Continuous	550	600	550	600	554	610	700	800	700	800	1000	1100	1000	1100	
	Standby	605	660	605	660	554	610	770	880	770	880	1100	1210	1100	1210	
No. of Phases		3-Phase, 4-Wire														
Rated Voltage*1	V	② Dual Voltage										③ Single Voltage				
Power Factor		0.8 (Lagging)														
Voltage Regulation	%	Within ±0.5														
Excitation		Brushless, Rotating Exciter (With A.V.R.)														
Insulation		Class F										Class H				

## ENGINE

Make&Model		VOLVO TAD1642GE	Komatsu SA6D170A	Mitsubishi S6R-PTA	Komatsu SA12V140	Mitsubishi S12A2-PTA	Mitsubishi S12H-PTA	Cummins QST30-G4							
Type		Inlined Direct Injected Turbocharged, Aftercooled					V12 Direct Injected Turbocharged, Aftercooled								
Output Rating	PS/rpm	659/1500	723/1800	639/1500	698/1800	762/1500	768/1800	834/1500	1000/1800	830/1500	920/1800	1209.2/1500	1292.5/1800	1196/1500	1369/1800
	kW/min <sup>-1</sup>	485/1500	532/1800	470/1500	513/1800	517/1500	565/1800	613/1500	736/1800	610/1500	677/1800	890/1500	950/1800	880/1500	1007/1800
No. of Cylinders-Bore×Stroke	mm	6-144×165		6-170×170		6-170×180		12-140×165		12-150×160		12-150×175		12-140×165	
Piston Displacement	L	16.120		23.150		24.500		30.480		33.93		37.110		30.48	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent													
Fuel Consumption*2	L/h	81.2	91.7	81.8	93.7	82.0	96.4	102	120	103	125	154	180	144	167
Lube Oil Sump Capacity	L	93		119		92		151		120		200		154	
Coolant Capacity	L	48		112		118		170		205		244		234	
Battery×Quantity		190H52×2					190H52×4								
Fuel Tank Capacity	L	490					800								

## UNIT

Dimensions	Length mm	5180 (4700)*3	5580 (5100)*3	5280 (4800)*3	6110 (5500)*3	6210 (5600)*3	6610 (6000)*3	6610 (6000)*3
	Width mm	1650	1650	1650	1950	1950	2350	2200
	Height mm	2400	2400	2400	2500	2500	2950	2790
Dry Weight	kg	7535	8860	8700	11200	11350	14500	12700

## SOUND LEVEL

7m dB (A) 1500/1800 rpm (min <sup>-1</sup> )*4	72	75	67	71	69	72	70	72	67	69	72	74	71	75
--	----	----	----	----	----	----	----	----	----	----	----	----	----	----

\*1 Rated Voltage Classification \*5

Frequency	50Hz	60Hz
②	190~220V 380~440V	190~240V 380~480V
③	380~440V	380~480V

( ) indicates options.

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

\*3 Shown 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.

1[PS]=735.5[w]  
=735.5[kw]



DCA-800SPM



DCA-600SPV



DCA-1100SPC



# SPECIFICATION TABLE (25kVA~150kV CLASS SUPER SOUNDPROOF TYPE)

MODEL	DCA-25USI2	DCA-45USI2	DCA-60USH2	DCA-100USI	DCA-125USH	DCA-150USK
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## ALTERNATOR

Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60
Output Rating(kVA)	Continuous	20	25	37	45	50	60	80	100	100	125	125	150
	Standby	22	27.5	38.9	47.3	55	66	88	110	110	138	138	165
No. of Phases		3-Phase, 4-Wire											
Rated Voltage*1	V	④ Single Voltage (Dual Voltage is an option.)						② Dual Voltage					
Power Factor		0.8 (Lagging)											
Voltage Regulation	%	Within ±0.5											
Excitation		Brushless, Rotating Exciter (With A.V.R.)											
Insulation		Class F											

## ENGINE

Make&Model	Isuzu AA-4LE2	Isuzu BB-4JG1T	Hino W04D-TG	Isuzu DD-6BG1T	Hino J08C-UP	Komatsu SAA6D102E-2-D							
Type	Inlined, Direct Injected	Inlined, Direct Injected, Turbocharged				Inlined, Direct Injected, Turbocharged, Aftercooled							
Output Rating	PS/rpm	26/1500	32/1800	46.5/1500	56/1800	66/1500	78/1800	101/1500	126/1800	133/1500	156/1800	154/1500	184/1800
	kW/min <sup>-1</sup>	19.1/1500	23.5/1800	34.2/1500	41.2/1800	48.5/1500	57.4/1800	74.5/1500	92.8/1800	97.8/1500	115/1800	113/1500	135/1800
No. of Cylinders-Bore×Stroke	mm	4-85×96		4-95.4×107		4-104×118		6-105×125		6-114×130		6-102×120	
Piston Displacement	L	2.179		3.059		4.009		6.494		7.961		5.880	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent											
Fuel Consumption*2	L/h	3.2	3.9	6.7	8.4	8.3	10.2	13.4	17.1	16.7	21.9	20.5	25.1
Lube Oil Sump Capacity	L	8.5		10		16.5		22.4		25.5		22	
Coolant Capacity	L	6.4		10		11.9		20		19.6		22.4	
Battery×Quantity		80D26R×1		95D31R×1		80D26R×2		95D31R×2				95E41R×2	
Fuel Tank Capacity	L	92		170		170		225		250			

## UNIT

Dimensions	Length mm	1400	1580	2050	2650	2950	3100
	Width mm	790	950	950	1100	1240	1240
	Height mm	1350	1550	1450	1500	1600	1600
Dry Weight	kg	773	1100	1330	1940	2400	2600

## SOUND LEVEL

7m dB (A) 1500/1800 rpm (min <sup>-1</sup> )*3	52	52	51	53	52	55	55	57	53	56	55	58
--	----	----	----	----	----	----	----	----	----	----	----	----

\*1 Rated Voltage Classification

Frequency	*4	
	50Hz	60Hz
②	190~220V 380~440V	190~240V 380~480V
④	190~220V (380~440V)	200~240V (380~480V)

( ) indicates options.

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

\*3 Sound level reflects high-speed no-load operation and is calculated by averaging the measurements at four points, each 7 meters from the source.

\*4 Depending on location and area, output voltage may differ from values listed in catalog.



DCA-45USI2



DCA-60USH2



DCA-100USI

### NOTE 1 OUTPUT RATING

- Continuous output rating applies to operation under standard conditions as per JIS D0006\*.
- Standby output rating applies to intermittent or emergency operation for approximately 1 hour as per JIS D0006.
- Kilowatts (kW) is calculated by multiplying output kVA by 0.8.

\*JIS D0006: Standard air conditions Temperature 25°C Atmospheric pressure 100kPa Relative humidity 319%RH

### NOTE 2 RATED VOLTAGE

- Line to neutral voltage is calculated by dividing line to line voltage by  $\sqrt{3}$ .
- Besides the voltages shown on the specification table, other voltages are available upon request.

### NOTE 3

Colours of products would be different from printed ones of catalogues.

# 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-45 to 150, provided as standard feature for DCA-220 and above)  
(Cannot be used with 45ESI, 45USI2)

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.)

#### Slowdown Device

(For DCA-45 to 150) (Cannot be used with 45ESI,45USI2,60ESI2 )

In addition to a slowdown function that automatically changes to high-speed operation when a load is applied, and to low-speed operation when there is no load, this device has an automatic idling function that performs warm-up operation when the engine is started (between 5 and 180 seconds depending upon the room temperature where the unit is located). Furthermore, the addition of a remote-control box allows the engine starting/stopping and automatic idling function as well as the slowdown function to be operated from a remote location.

#### Remote Controller (For DCA-220 to 1100)

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 warming 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).

**Note:** The remote-control box for the DCA-800SPM differs from the picture.



## Automatic Oil Lubrication Device

(For DCA-25 to 800, provided as standard feature for DCA-500ESM, 610SPM, 800SPM and 1100SPM,1100SPC) (Cannot be used with 25USI2,25ESK)

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.



## Automatic Fuel Replenishment Device

(For DCA-25ESI, 45 to 60)

When the level in the unit tank drops after an extended period of operation, a level sensor detects this and an electric pump is operated to automatically replenish fuel in the unit tank from a separate tank. (Cannot be used with three-way valve.)

## Salt Corrosion Specifications

(For DCA-13 to DCA-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.

## Three-Phase/Single-Phase Output Changeover Device

(For DCA-13LSK,13LSY,25ESK,25ESI,45ESH,45USI2,60ESH,60USH2)

This device facilitates easy changeover between the three-phase and single-phase output modes with the three-phase/single-phase changeover switch in the control panel. The control panel has an output mode confirmation window and indicator lamp so that the output mode can be confirmed at any time.

(DCA-45USI2 and 60USH2 only provided with indicator lamp.)

## 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 / Method	Engine Starting / Stopping	Synchronization Verification / Activation	Load Sharing	Remarks
Manual Parallel Operation Device	Manual	Manual	Manual	Standard feature for DCA-125 to 1100
Automatic Load Sharing Device	Manual	Manual	Automatic	For DCA-150 and above
Automatic Parallel Operation Device	Manual	Auto operation with pushbutton	Automatic	For DCA-220 and above. Standard feature for DCA-1100SPM,1100SPC
Fully Automatic Parallel Operation Device (with GCP generator controller)	Semi-automatic Automatic	Automatic	Automatic	Refer to (4) below for 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-125 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:** DCA-220ESM, 400ESM, 500ESM, 610SPM, 800SPK, provided as standard feature for DCA-800SPM.
- 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.

## Trailer

Trailers can be fitted to generators to facilitate on-site movement. (trail-ers for DCA-60 and below are two-wheel; those for DCA-75SP through 400 are four-wheel)

Bolt connectors make mounting and dismounting simple.



Two-wheel type



Four-wheel type

## Other Options

The following options are also available:

- **Reverse power relay**  
(For DCA-125 and above. Provided as standard feature for DCA-800SPK, 800SPM, DCA-1100SPM, 1100SPC)
- **AC power meter**  
(For DCA-125 and above. Provided as standard feature for DCA-800SPK, 800SPM, DCA-1100SPM, 1100SPC)
- **Dual-voltage specifications**  
(For DCA-25USI2, 45ESH, 45USI2, 60ESH, 60USH2. Provided as standard feature for DCA-25ESK, 25ESI, 45ESI, 60ESI2, 75SPI, DCA-100 to 800. Not available for DCA-13LSK, 13LSY, 15LSK, 20LSK, 35SPK, DCA-1100SPM, 1100SPC)

- **Lubricant temperature gauge**  
(Provided as standard feature for DCA-220 and above)
- **Overspeed protection device**  
(Provided as standard feature for DCA-800SPK, 800SPM, 1100SPM, 1100SPC)
- **Keyed fuel tank cap**  
(For DCA-13 to 1100)
- **Mounting of muffler flange**

Other options for different ranges and operating capabilities are available. Please feel free to consult with Denyo.

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

# HOW TO SELECT A GENERATOR

## Range of motor capacities that can be used with Denyo generators.

Choosing generator output according to motors and other loads is made simple by referring to the motor capacity range and generator output in this table.

Item \ Model		DCA-13		DCA-15		DCA-20		DCA-25		DCA-35		DCA-45		DCA-60	
Frequency (Hz)		50	60	50	60	50	60	50	60	50	60	50	60	50	60
EG capacity (kVA)		10.5	13	12.5	15	17	20	20	25	30	35	37	45	50	60
Motor capacity (kW)	Direct startup	3.4	4.1	4	5	5.4	6.3	6.3	7.6	9.4	11.6	12.3	14.9	16	20.5
	Y-Δ startup(1)	5.2	6.4	6	7.5	8.2	9.5	9.5	11.4	14.3	17.5	18.5	22.4	24	30.8
	Y-Δ startup(2)	8.3	10.2	9.6	11.9	13.1	15.7	15.7	19.5	23.1	27.7	28.2	34.3	38.4	46

Item \ Model		DCA-75		DCA-100		DCA-125		DCA-150		DCA-220		DCA-300		DCA-400	
Frequency (Hz)		50	60	50	60	50	60	50	60	50	60	50	60	50	60
EG capacity (kVA)		65	75	80	100	100	125	125	150	200	220	270	300	340	400
Motor capacity (kW)	Direct startup	21.5	25	27.2	34.5	34.5	42.5	42.5	51	68	76	91	102	115	136
	Y-Δ startup(1)	32.3	37.5	40.8	51.8	51.8	63.8	63.8	76.5	102	114	136	153	173	204
	Y-Δ startup(2)	48.8	58	62	68	68	97	97	115	151	172	208	231	262	308

Item \ Model		DCA-500		DCA-600/610		DCA-800	
Frequency (Hz)		50	60	50	60	50	60
EG capacity (kVA)		450	500	550/554	600/610	700	800
Motor capacity (kW)	Direct startup	155	175	185	205	210	243
	Y-Δ startup(1)	233	263	278	308	315	365
	Y-Δ startup(2)	351	390	432	460	508	575

Motor usage examples in the above table are benchmark values : generator capacity will differ according to the required momentary voltage drop, motor load factor, and size of startup capacity, as well as motor age and efficiency.

### Notes

- Momentary voltage drop when a motor starts up is assumed to be within 30% of no-load voltage.
- Motor startup kVA is assumed to be 7kVA per 1kW.
- Motor efficiency is assumed to be 85%, and load factor about 90%.
- Values shown for Y-Δ startup(1) and Y-Δ startup(2) are open and closed, respectively; needed generator capacity differs depending on startup state.
- Not appropriate for determining the capacity of emergency generating equipment (especially disaster-prevention generating equipment).



**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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