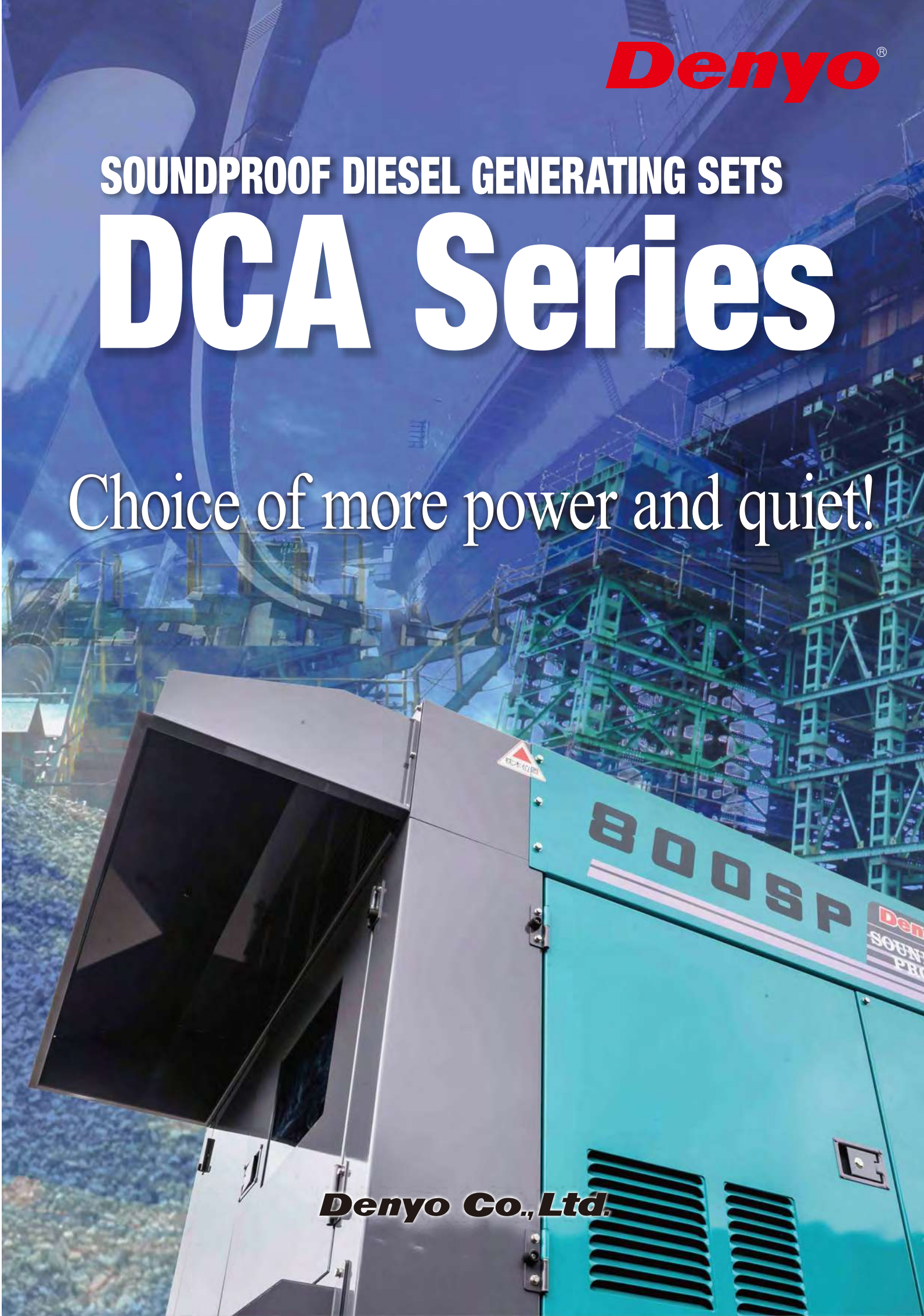
Denyo®

SOUNDPROOF DIESEL GENERATING SETS

DCA Series

Choice of more power and 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 infra-structure 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 areawhere electricity is unavaiable.

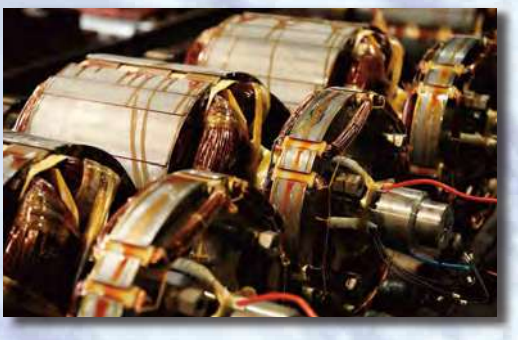
As the power source in the construction site.

As the Emergency power source in the hospital.

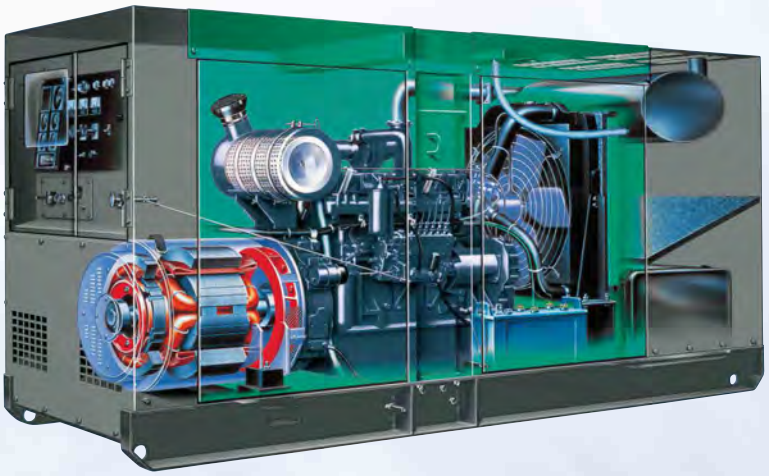
GENERAL CONSTRUCTION

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℃ temperature rise at 40℃ ambient (JEC2130).

INSULATION: ClassF (JEC2130).

VOLTAGE REGULATION: Within±0.5%
(except DCA-400SP)

FREQUENCY REGULATION: Within 5.0% through noload 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.

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 and 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 largecapacity generating plant on-site, without the need to procure any other equipment.

DUAL VOLTAGE SYSTEM
(optional for DCA-25USI3, 45ESI, 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 acces 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 producted models, through improve- ments in coupling techniques and alternator design.

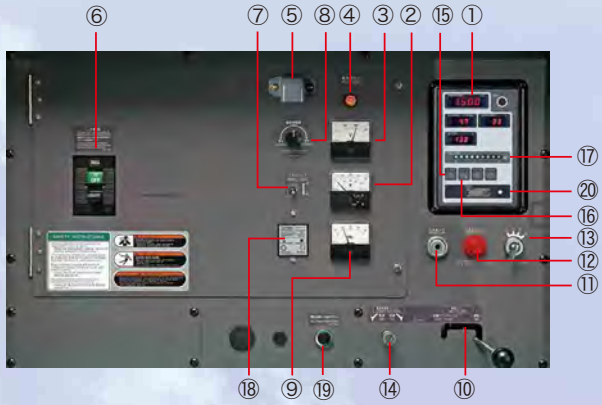
—The sturdy weatherproof steel bonnet on a heavy-duty steel skid base allows easy handling by a forklift.

—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.

①Indicator
②AC Ammeter
③Voltmeter
④Pilot Lamp
⑤Panel Light
⑥Circuit Breaker
⑦Panel Light Switch
⑧Voltage Regulator
⑨ Frequency Meter
⑩Throttle Lever
⑪Preheat Lamp
⑫Emergency Stop Button
⑬ Starter Switch
⑭ Frequency Adjust Screw
⑮Warning Lamp (Oil Pressure)
⑯Warning Lamp (Water Temperature)
⑰Fuel Level Indicator
⑱Earth Leakage Relay
⑲Fuel Priming Pump Button
⑳Hour Meter



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.

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

MODEL		DCA-13LSK		DCA-13LSY		DCA-15LSK		DCA-20LSK		DCA-25ESK		DCA-25ESI		DCA-35SPK		DCA-45ESI	
ALTERNATOR																	
Frequency	Hz	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
	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
No.of Phases		3-Phase,4-Wire															
Rated Voltage*1	V	①or③ Single Voltage								②Dual Voltage				①or③ Single Voltage		②Dual 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																	
Maker & 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	
Type		Inlined, Swirl Chambered		Inlined, Direct Injected		Inlined,Swirl Chambered						Inlined, Direct Injected		Inlined, Swirl Chambered		Inlined,Direct Injected, Turbocharged	
Output Rating	PS/rpm	13.7/1500	16.9/1800	15.3/1500	18.3/1800	16.9/1500	20/1800	23.1/1500	27.1/1800	25/1500	32.2/1800	26/1500	32/1800	38.5/1500	44.1/1800	46.5/1500	56/1800
	kW/rpm	10.2/1500	12.4/1800	11.3/1500	13.5/1800	12.4/1500	14.7/1800	17.0/1500	19.9/1800	18.4/1500	23.71800	19.1/1500	23.5/1800	28.3/1500	32.4/1800	34.2/1500	41.2/1800
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	
Piston Displacement	L	1.393		1.496		1.647		2.197		2.197		2.179		3.318		3.059	
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
Lube Oil Sump Capacity	L	5.6		6.7		5.6		7.6		7.6		8.5		13.2		10	
Coolant Capacity	L	6.4		3.9		6.4		7.9		7.9		6.6		10.5		10.9	
Battery×Quantity		80D26R×1												95D31R×1			
Fuel Tank Capacity	L	62										70		82		100	
UNIT																	
Dimensions	Length mm	1390		1390		1390		1540		1540		1540		1900		1900	
	Width mm	650		650		650		650		650		680		860		880	
	Height mm	900		900		900		900		900		900		990		1250	
Dry Weight	kg	503		490		516		580		591		564		890		960	
SOUND LEVEL																	
7m dB(A) 1500/1800 rpm(min^{-1})*3		58	61	61	62	60	63	61	64	62	64	60	64	60	63	60	62

*1 Rated Voltage Classification *4

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-25ESK

DCA-25ESI


DCA-35SPK

DCA-45ESI

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

MODEL		DCA-60ESH		DCA-60ESI2		DCA-75SPI		DCA-100ESI		DCA-125SPK3		DCA-150ESK	
ALTERNATOR													
Frequency	Hz	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	125	150
	Standby	55	66	55	66	68.3	78.8	88	110	110	138	138	165
No.of Phases		3-Phase,4-Wire											
Rated Voltage*1	V	④Single Voltage (Dual Voltage is an option)		②Dual 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													
Maker & Model		Hino W04D-TG		Isuzu BB-4BG1T		Isuzu A-6BG1		Isuzu DD-6BG1T		Komatsu SA6D102E-1-A		Komatsu SAA6D102E-2-D	
Type		Inlined,Direct Injected, Turbocharged				Inlined,Direct Injected		Inlined,Direct Injected, Turbocharged		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	133/1500	157/1800	153/1500	183/1800
	kW/rpm	48.5/1500	57.4/1800	47.9/1500	57.1/1800	58.8/1500	68.4/1800	73.6/1500	91.3/1800	97.8/1500	115.5/1800	113/1500	135/1800
No.of Cylinders-Bore×Stroke	mm	4-104×118		4-105×125		6-105×125		6-105×125		6-102×120		6-102×120	
Piston Displacement	L	4.009		4.329		6.494		6.494		5.880		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	15.5	20.1	20.6	25.0
Lube Oil Sump Capacity	L	16.5		13.2		19.3		22.4		22		22	
Coolant Capacity	L	12.2		15.4		22.9		22.0		23.9		28.4	
Battery×Quantity		80D26R×2		120E41R×1		95E41R×2		95D31R×2		95E41R×2			
Fuel Tank Capacity	L	125		125		155		225		250			
UNIT													
Dimensions	Length mm	2050		2200		2630		2750		3000		3250	
	Width mm	880		880		1000		1050		1080		1080	
	Height mm	1250		1250		1300		1350		1500		1500	
Dry Weight	kg	1240		1120		1590		1730		2120		2390	
SOUND LEVEL													
7m dB(A) 1500/1800 rpm (min^{-1})*3		61	64	61	64	61	63	59	61	63	66	62	65

*1 Rated Voltage Classification

Frequency	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-60ESI2

DCA-75SPI

DCA-100ESI

DCA-125SPK3

DCA-150ESK

SPECIFICATION TABLE (150kVA～600kVA CLASS SOUNDPROOF TYPE)

MODEL		DCA-150ESM		DCA-220ESM		DCA-220SPK3		DCA-300SPK3		DCA-400SPKⅡ		DCA-500SPK		DCA-600SPV	
ALTERNATOR															
Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60	50	60
Output Rating(kVA)	Continuous	125	150	200	220	200	220	270	300	350	400	450	500	550	600
	Standby	138	165	220	242	220	242	297	330	385	440	495	550	605	660
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															
Maker & Model		Mitsubishi 6D16-TLE2D		Mitsubishi 6D24-TLE2B		Komatsu S6D125E-2-A		Komatsu SA6D125E-2-A		Komatsu SA6D140-A		Komatsu SA6D170-B		Volvo TAD1642GE	
Type		Inlined,Direct Injected, Turbocharged,Aftercooled				Inlined,Direct Injected, Turbocharged		Inlined,Direct Injected,Turbocharged,Aftercooled							
Output Rating	PS/rpm	153/1500	183/1800	246/1500	270/1800	242/1500	277/1800	316/1500	350/1800	421/1500	485/1800	520/1500	580/1800	659/1500	723/1800
	kW/rpm	113/1500	135/1800	181/1500	199/1800	178/1500	204/1800	232/1500	257/1800	310/1500	357/1800	382/1500	427/1800	485/1500	532/1800
No.of Cylinders-Bore×Stroke	mm	6-118×115		6-130×150		6-125×150				6-140×165		6-170×170		6-144×165	
Piston Displacement	L	7.540		11.940		11.040				15.240		23.150		16.120	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent													
Fuel Consumption*2	L/h	19.8	24.0	33.7	38.1	31.5	35.7	43.6	50.0	52.1	60.8	69.5	83.1	81.2	91.7
Lube Oil Sump Capacity	L	16		37		42		62		74		119		48	
Coolant Capacity	L	26.3		42		36		35		68.4		92.5		93	
Battery×Quantity		95E41R×2		145G51×2 or 155G51×2						190H52×2 or 210H52×2					
Fuel Tank Capacity	L	250		380				490							
UNIT															
Dimensions	Length mm	3350		3700		3650		3750		4200		5480(5000)*3		5180(4700)*3	
	Width mm	1080		1300		1300		1400		1400		1650		1650	
	Height mm	1500		1750		1750		1800		2100		2400		2400	
Dry Weight	kg	2450		3630		3670		4160		5420		8540		7535	
SOUND LEVEL															
7m dB(A) 1500/1800 rpm(min-1)*4		62	67	61	63	63	65	68	71	67	68	68	71	72	75

*1 Rated Voltage Classification

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

( ) indicates options.

*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.

DCA-220ESM

DCA-220SPK3

DCA-400SPK Ⅱ

DCA-500SPK

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

MODEL		DCA-600SPK		DCA-610SPM		DCA-800SPK		DCA-800SPM		DCA-1100SPK		DCA-1100SPM2	
ALTERNATOR													
Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60
Output Rating(kVA)	Continuous	550	600	554	610	700	800	700	800	1000	1100	1000	1100
	Standby	605	660	554	610	770	880	770	880	1100	1210	1100	1210
No.of Phases		3-Phase,4-Wire											
Rated Voltage*1	V	②Dual Voltage								③Single Voltage			
Power Factor		0.8(Lagging)											
Voltage Regulation	%	Within ±0.5											
Excitation		Brushless,Rotating Exciter(With A.V.R.)											
Insulation		Class F											
ENGINE													
Maker & Model		Komatsu SA6D170A		Mitsubishi S6R-PTA		Komatsu SA12V140		Mitsubishi S12A2-PTA		Komatsu SAA12V140		Mitsubishi S12H-PTA	
Type		Inlined,Direct Injected,Turbocharged,Aftercooled				V12 Direct InjectedTurbocharged, Aftercooled							
Output Rating	PS/rpm	639/1500	698/1800	703/1500	768/1800	834/1500	1000/1800	830/1500	920/1800	1171/1500	1324/1800	1210/1500	1292/1800
	kW/rpm	470/1500	513/1800	517/1500	565/1800	613/1500	736/1800	610/1500	677/1800	861/1500	974/1800	890/1500	950/1800
No.of Cylinders-Bore×Stroke	mm	6-170×170		6-170×180		12-140×165		12-150×160		12-140×165		12-150×175	
Piston Displacement	L	23.150		24.500		30.480		33.93		30.480		37.110	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent											
Fuel Consumption*2	L/h	81.8	93.7	82.0	96.4	102	120	103	125	152	169	161	188
Lube Oil Sump Capacity	L	119		92		151		120		207		200	
Coolant Capacity	L	112		118		170		205		237		210	
Battery×Quantity		190H52×2 or 210H52×2				190H52×4 or 210H52×4				145G51×4 or155G51×4		190H52×4 or 210H52×4	
Fuel Tank Capacity	L	490								600		800	
UNIT													
Dimensions	Length mm	5580(5100)*3		5280(4800)*3		6110(5500)*3		6210(5600)*3		6510(5900)*3		6510(5900)*3	
	Width mm	1650		1650		1950		1950		2200		2200	
	Height mm	2400		2400		2500		2500		2790		2790	
Dry Weight	kg	8860		8700		11200		11350		13000		14180	
SOUND LEVEL													
7m dB(A) 1500/1800 rpm(min^{-1})*4		67	71	69	72	70	72	67	69	70	74	73	77

*1 Rated Voltage Classification

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

( ) indicates options.

*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.

DCA-600SPK

DCA-800SPK

DCA-800SPM

DCA-1100SPK

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

MODEL		DCA-25USI3		DCA-45USI2		DCA-60USH2		DCA-100USI		DCA-150USK	
ALTERNATOR											
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Output Rating(kVA)	Continuous	20	25	37	45	50	60	80	100	125	150
	Standby	22	27.5	38.9	47.3	55	66	88	110	138	165
No.of Phases		3-Phase,4-Wire									
Rated Voltage*1	V	④Single Voltage(Dual Voltage is an option.)						②Dual Voltage			
Power Factor		0.8(Lagging)									
Voltage Regulation	%	Within ±0.5									
Excitation		Brushless,Rotating Exciter(With A.V.R.)									
Insulation		Class F									
ENGINE											
Maker & Model		Isuzu BV-4LE2		Isuzu BB-4JG1T		Hino W04D-TG		Isuzu DD-6BG1T		Komatsu SAA6D102E-2-D	
Type		Inlined, Direct Injected		Inlined,Direct Injected,Turbocharged						Inlined,Direct Injected, Turbocharged,Aftercooled	
Output Rating	PS/rpm	26/1500	31/1800	46.5/1500	56/1800	66/1500	78/1800	101/1500	126/1800	154/1500	184/1800
	kW/rpm	19.1/1500	22.9/1800	34.2/1500	41.2/1800	48.5/1500	57.4/1800	74.5/1500	92.8/1800	113/1500	135/1800
No.of Cylinders-Bore×Stroke	mm	4-85×96		4-95.4×107		4-104×118		6-105×125		6-102×120	
Piston Displacement	L	2.179		3.059		4.009		6.494		5.880	
Fuel		ASTM No. 2 Diesel Fuel or Equivalent									
Fuel Consumption*2	L/h	3.6	4.5	6.7	8.4	8.3	10.2	13.4	17.1	20.5	25.1
Lube Oil Sump Capacity	L	8.5		10		16.5		22.4		22	
Coolant Capacity	L	6.8		10		11.9		20		22.4	
Battery×Quantity		80D26R×1		95D31R×1		80D26R×2		95D31R×2		95E41R×2	
Fuel Tank Capacity	L	80		170		170		225		250	
UNIT											
Dimensions	Length mm	1550		1580		2050		2650		3100	
	Width mm	790		950		950		1100		1240	
	Height mm	1000		1550		1450		1500		1600	
Dry Weight	kg	660		1100		1330		1940		2600	
SOUND LEVEL											
7m dB(A) 1500/1800 rpm(min^{-1})*3		50	54	51	53	52	55	55	57	55	58

*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)

( )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-25USI3

DCA-45USI2

DCA-100USI

NOTE 1 OUTPUT RATING

—Continuous output rating applies to operation under standard conditions as per JIS D0006-1*.
—Standby output rating applies to intermittant or emergency operation for approximately 1 hour as per JIS D0006-1.
—Kilowatts(kW) is calculated by multiplying output kVA by 0.8.
*JIS D0006:Standard air conditions Tenperature 25℃ Atmospheric pressure 100kPa Relative humidity 30%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

Automatic Idling Device

(Provided as standard feature for DCA-220 and above)

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-220 to 1100)

This device allows the engine starting/stoppingand 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 to1100, provided as standard feature for 610SPM, 800SPM, and 1100SPM,1100SPM2) (Cannot be used with 25USI3,25ESK)

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.

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-1100SP
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, 610SPM, 800SPK, provided as standard feature for DCA-800SPM.

(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.

Trailer

Trailers can be fitted to generators to facilitate on-site movement. (trailers 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-800, DCA-1100SP)

— **AC power meter**
(For DCA-125 and above.Provided as standard feature for DCA-800, DCA-1100SP)

— **Dual-voltage specifications**
(For DCA-25USI3,45USI2,60ESH,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-1100SP)

— **Bearing/stator temperature gauge** (For DCA-125 and above. Provided as standard feature for DCA-800SPK,800SPM,DCA-1100SP)

— **Lubricant temperature gauge**
(Provided as standard feature for DCA-220 and above)

— **Overspeed protection device**
(Provided as standard feature for DCA-600SPK,DCA-610SPM,DCA-800SPK, 800SPM, DCA-1100SP)

— **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-△ 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-△ 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-△ 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-△ 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-△ startup(1)	233	263	278	308	315	365
	Y-△ 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-△ startup(1)and Y-△ 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).

Direct inquiries to the nearest Denyo distributor or to Denyo co.,Ltd.

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