

**OUR HEAD OFFICE AND PLANT ARE CERTIFIED
TO BOTH ISO 9001 AND ISO 14001.**

Niigata plant:

Shimo Aozu, Tsubame-city, Niigata-prefecture, Japan.



ISO9001 : JQA-0581
ISO14001 : JQA-EM4670

SAFETY

- Operate safely in accordance with operation manual.
- To prevent trouble and accidents, perform daily and preventive maintenance checks without fail.

AIRMAN®

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DISTRIBUTOR :

Stage 2 Stage 3 **ENGINE GENERATOR**

AIRMAN®

Engine GENERATOR

SDG series
10.5~800kVA



HOKUETSU INDUSTRIES CO., LTD.

Eco Friendly

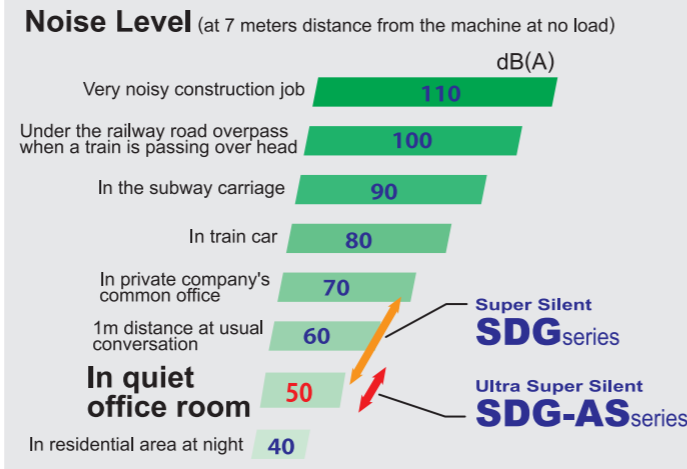
Silences

We are succeeded to be silent by adopting the silent engine, and the high-performance muffler, the special exhaust-duct. Furthermore we are succeeded to achieve more silent noise level by adopting the perfect sealed panel and super-silent "intake manifold".

And we have achieved less vibration by applying the new support method of the muffler.

SDG13S~220S
Ultra Super Silent
SDG25AS~150AS

SDG300S~800S



Easy operation

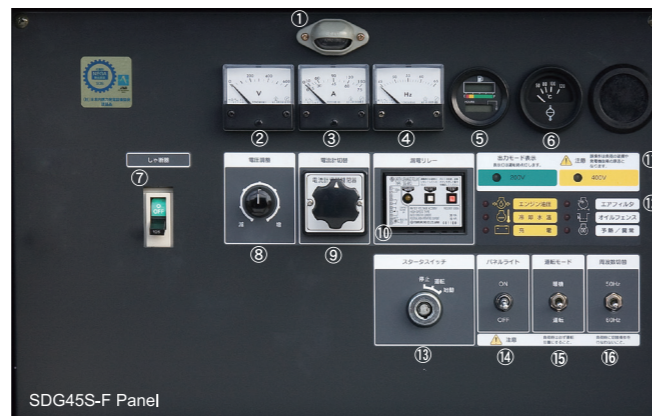
Quick-start engine

[SDG13- SDG220]
We are applying the quick-heating "glow-plug" for preheat engine. And we are succeed to be quick start in low temperature.

[SDG220 - SDG800]
We are mounting the quick-start engine which is improved turbo and governor for using the hand-auger or vibro-hammer.

Control box

We have developed "one" control panel which is combined engine control and generator control.



- | | |
|-------------------------------|---|
| ① Panel light | ⑨ Current selector switch |
| ② Voltmeter | ⑩ Leakage relay |
| ③ Ammeter | ⑪ Output indicator lamp |
| ④ Frequency meter | ⑫ Warning lamps (For details, see the followings) |
| ⑤ Fuel gauge with hour meter | ⑬ Starter switch |
| ⑥ Water temperature meter | ⑭ Panel light switch |
| ⑦ Three phase circuit breaker | ⑮ Operation mode selection switch |
| ⑧ Voltage regulator | ⑯ Frequency selection switch |

Safety

Various kinds of safety devices

Overcurrent, Short circuit protection
Protect the machine by shutting down the breaker when overcurrent or short circuit occurs.

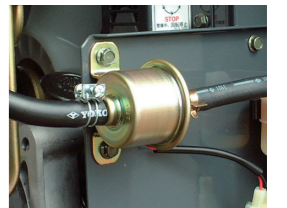
Electric leakage protection
In case of electric leakage , 3-Phase & single phase breaker will be shutdown with warning light on.



Easy maintenance

Automatic air bleeding system

(SDG13~150)
Automatic Air Bleeding Device is equipped to automatically bleed air from fuel line system. This eliminates the need to prime the fuel system again should the generator be shutdown due to running out of fuel. Simply top up the fuel and turn the key switch to operation position, air in the fuel line system is bled automatically. As for both SDG125S/150S/150AS, it is possible to automatically bleed air by pushing the push button provided at the operation panel.



Stainless bolt

We use stainless bolts on front cover and left-side door which have to be removed when performing maintenance to prevent bolts from rusting. Also we reduce the risk of broken bolts on bonnet that might be resulted from knocking by minimizing the bolts' quantity.



Standard Model SDG series

More portable and more compact

BOX type is designed for being operated on the vehicle. And it enabled to be easy- access to sight.



SDG13S



SDG25S



SDG45S



■ SPECIFICATIONS

Model	SDG13S -3B1	SDG25S -3B1	SDG25S -3A8	SDG25S -3A8R For Reefer Type	SDG45S -3B2	SDG45SE -3B2
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● Generator

Type		Dual Voltage				Single Voltage				Dual Voltage		Single Voltage	
		50	60	50	60	50	60	50	60	50	60	50	60
Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60
Prime Output	kVA	10.5	13	20	25	20	25	20	25	37	45	37	45
Standby Output	kVA	11.5	14.3	22	27.5	22	27.5	22	27.5	37	45	37	45
Voltage	V	200/400	220/440	200/400	220/440	400	440	400	440	200/400	220/440	400	440
Power factor	%	3-phase 80 (lagging) / Single-phase 100											

● Engine

Make/Model		KUBOTA D1503-K3A	KUBOTA V2403-K3A	KUBOTA V2403-M-E2B				KUBOTA V3600-T-K3A					
Type		Swirl Chamber						Swirl Chamber, Turbo-Charged					
Rated output	kW(PS)	11.5(15.6)	13.7(18.7)	19.1(26)	23.7(32.2)	19.1(26)	23.7(32.2)	19.1(26)	23.7(32.2)	35(47.6)	42.5(57.8)	35(47.6)	42.5(57.8)
Rated speed	min ⁻¹	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Fuel tank capacity	L	58		70				62		100			
Engine oil amount	L	6.5		9.5				13.2					
Battery × quantity		85D26R×1											

● Dimension & Weight

Overall length	mm(inch)	1480(58.3)		1550(61.0)				1640(64.6)		1870(73.6)			
Overall width	mm(inch)	650(25.6)		700(27.6)				650(25.6)		860(33.9)			
Overall Height	mm(inch)	950(37.4)		980(38.6)		1010(39.8)		900(35.4)		1220(48.0)			
Operating weight	kg	580		680		695		680		1020			

● Other

Sound power level in decibels	dB	83		90		92				88			
Sound pressure level	dB(A)	55	57	59	63	61	64	63	66	58	61	58	61
Designated emissions regulation		JPN Stage 3				JPN Stage 2				JPN Stage 3			

- For other voltages except the above-mentioned ones, contact us.
- Sound pressure level is measured at 7m in 4 directions average.
- Above figures are applied under operation in standard atmosphere conditions as per JIS D0006.
- "Standby Output" rating is applied only under intermittent or emergency operation for approximately 1 hour.

Standard Model SDG series

More portable and more compact

BOX type is designed for being operated on the vehicle. And it enabled to be easy- access to sight.



SDG60S



SDG125S/150S



SDG220S



■ SPECIFICATIONS

Model	SDG60S -3A6	SDG100S -3A5	SDG125S -3A6	SDG150S -3A6	SDG220S -3A7
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● Generator

Type		Dual Voltage								Dual Voltage (Manual parallel)	
		50	60	50	60	50	60	50	60	50	60
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Prime Output	kVA	50	60	80	100	100	125	125	150	200	220
Standby Output	kVA	55	66	88	110	110	137.5	137.5	165	220	242
Voltage	V	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440
Power factor	%	3-phase 80 (lagging) / Single-phase 100									

● Engine

Make/Model		ISUZU BB-4BG1T	ISUZU DD-6BG1T	HINO J08C-UP				KOMATSU SAA6D125E-2-B			
Type		Direct-Injection, Turbo-Charged						Direct-Injection, Turbo-Charged, Intercooled			
Rated output	kW(PS)	48.1(65.4)	57.4(78.1)	73.6(100.1)	91.2(124)	96.3(130.9)	112.5(153)	118(160)	140(190)	178(242)	204(277)
Rated speed	min ⁻¹	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Fuel tank capacity	L	135		225		250		390			
Engine oil amount	L	14		18		24.5		42			
Battery × quantity		85D26R×1		95D31R×2		95D31R×2		170F51×2			

● Dimension & Weight

Overall length	mm(inch)	2090(82.3)		2600(102.4)		2990(117.7)				3700(145.7)	
Overall width	mm(inch)	860(33.9)		1000(39.4)		1180(46.5)				1300(51.2)	
Overall Height	mm(inch)	1220(48.0)		1400(55.1)		1480(58.3)				1750(68.9)	
Operating weight	kg	1260		1870		2300		2430		3700	

● Other

Sound power level in decibels	dB	90		91		92		94		95	
Sound pressure level	dB(A)	59	63	61	64	63	65	63	66	64	65
Designated emissions regulation		JPN Stage 2									

- For other voltages except the above-mentioned ones, contact us.
- Sound pressure level is measured at 7m in 4 directions average.
- Above figures are applied under operation in standard atmosphere conditions as per JIS D0006.
- "Standby Output" rating is applied only under intermittent or emergency operation for approximately 1 hour.



SDG300S



SDG500S



SDG610S



■ SPECIFICATIONS

Model	SDG300S -3A6	SDG400S -3A6	SDG500S -3A6	SDG610S -3AK6	SDG610S -3AV6	SDG800S -3A7
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● Generator													
Type		Dual Voltage (Manual parallel)											
Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60
Prime Output	kVA	270	300	350	400	450	500	555	610	555	610	700	800
Standby Output	kVA	297	330	385	440	495	550	610.5	671	610.5	671	770	880
Voltage	V	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440
Power factor	%	3-phase 80 (lagging) / Single-phase 100											

● Engine													
Make/Model		KOMATSU SAA6D125E-2-B		KOMATSU SA6D140E-3-A		KOMATSU SAA6D140E-3-B		KOMATSU SA6D170-A-1		VOLVO TAD1642GE		KOMATSU SAA12V140E-3	
Type		Direct-Injection, Turbo-Charged, Intercooled											
Rated output	kW(PS)	232(316)	257(350)	310(421)	357(485)	382(520)	427(580)	485(659)	561(763)	503(684)	532(723)	613(834)	752(1123)
Rated speed	min ⁻¹	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Fuel tank capacity	L	490		490		490		490		490		730	
Engine oil amount	L	62		79		91.5		119		48		193	
Battery × quantity		170F51×2		225H52×2						245H52×4			

● Dimension & Weight													
Overall length	mm(inch)	3900(153.5)		4150(163.4)		4550(179.1)		4650(183.1)		4650(183.1)		5350(210.6)	
Overall width	mm(inch)	1400(55.1)		1400(55.1)		1600(63.0)		1600(63.0)		1600(63.0)		1900(74.8)	
Overall Height	mm(inch)	1760(69.3)		2040(80.3)		2090(82.3)		2350(92.5)		2350(92.5)		2450(96.5)	
Operating weight	kg	4290		5670		6750		7960		6640		11310	

● Other															
Sound power level in decibels	dB	98		99				102		105		102			
Sound pressure level	dB(A)	66	69	67	70	67	70	69	72	71	75	69	74		
Designated emissions regulation		JPN Stage 2						-		EPA Tier 2				-	

• For other voltages except the above-mentioned ones, contact us. • Sound pressure level is measured at 7m in 4 directions average.
 • Above figures are applied under operation in standard atmosphere conditions as per JIS D0006.
 • "Standby Output" rating is applied only under intermittent or emergency operation for approximately 1 hour.

Ultra Super Silent Models SDG-AS series

You are surely surprised at "the quietness" of this machine.

AS series are suitable for using in the silent place like the hospital, the bank office, the office building, the theater, event site. And already equipped in that place.



SDG25AS



SDG45AS



SDG60AS



SDG100AS



SDG150AS

■ SPECIFICATIONS

Model	SDG25AS -3B1	SDG45AS -3B1	SDG60AS -3A6	SDG100AS -3A6	SDG150AS -3A6
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● Generator											
Type		Dual Voltage									
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Prime Output	kVA	20	25	37	45	50	60	80	100	125	150
Standby Output	kVA	22	27.5	40.7	49.5	55	66	88	110	137.5	165
Voltage	V	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440	200/400	220/440
Power factor	%	3-phase 80 (lagging) / Single-phase 100									

● Engine											
Make/Model		KUBOTA V2403-K3A		KUBOTA V3800-DI-T-K3A		ISUZU BB-4BG1T		ISUZU DD-6BG1T		HINO J08C-UD	
Type		Swirl Chamber		Direct-Injection, Turbo-Charged						Direct-Injection, Turbo-Charged, Intercooled	
Rated output	kW(PS)	19.1(26)	23.7(32.2)	38(51.7)	45.6(62)	48.1(65.4)	57.4(78.1)	73.6(100.1)	91.2(124)	118(160)	140(190)
Rated speed	min ⁻¹	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Fuel tank capacity	L	80		165		170		225		265	
Engine oil amount	L	9.5		13.2		14		18		24.5	
Battery × quantity		85D26R×1						95D31R×2			

● Dimension & Weight													
Overall length	mm(inch)	1570(61.8)		1995(78.5)		2090(82.3)		2700(106.3)		3200(126.0)			
Overall width	mm(inch)	800(31.5)		950(37.4)				1140(44.9)		1200(47.2)			
Overall Height	mm(inch)	1090(42.9)		1300(51.2)						1500(59.1)		1630(64.2)	
Operating weight	kg	810		1215		1440		2100		2850			

● Other											
Sound power level in decibels	dB	83		82		83		84		88	
Sound pressure level	dB(A)	53	56	51	54	55	56	54	57	55	58
Designated emissions regulation		JPN Stage 3						JPN Stage 2			

• For other voltages except the above-mentioned ones, contact us. • Sound pressure level is measured at 7m in 4 directions average.
 • Above figures are applied under operation in standard atmosphere conditions as per JIS D0006.
 • "Standby Output" rating is applied only under intermittent or emergency operation for approximately 1 hour.

Oil Fence Type SDG series

Further environmental friendly.

Oil fence tank is adopted "the double shell" for avoiding the oil leakage.



SDG60S-F



SDG60AS-F

■ SPECIFICATIONS

Model	SDG60AS -7A6 Ultra Super Silent & Oil Fence Type		SDG60S -7A6 Oil Fence Type		
● Generator					
Type	Dual Voltage				
Frequency	Hz	50	60	50	60
Prime Output	kVA	50	60	50	60
Standby Output	kVA	55	66	55	66
Voltage	V	200/400	220/440	200/400	220/440
Power factor	%	3-phase 80 (lagging) / Single-phase 100			
● Engine					
Make/Model	ISUZU BB-4BG1T				
Type	Direct-Injection, Turbo-Charged				
Rated output	kW(PS)	48.1(65.4)	57.4(78)	48.1(65.4)	57.4(78)
Rated speed	min ⁻¹	1500	1800	1500	1800
Fuel tank capacity	L	400			
Engine oil amount	L	14			
Battery × quantity		85D26R×1			
● Dimension & Weight					
Overall length	mm(inch)	2080(81.9)		2050(80.7)	
Overall width	mm(inch)	1000(39.4)		860(33.9)	
Overall Height	mm(inch)	1640(64.6)		1630(64.2)	
Operating weight	kg	1725		1650	
● Other					
Sound power level in decibels	dB	83		89	
Sound pressure level	dB(A)	54	56	59	61
Volume allowance	L	150		160	
Oil level at alarm lamp	L	65		60	
Designated emissions regulation		JPN Stage 2			

• For other voltages except the above-mentioned ones, contact us. • Sound pressure level is measured at 7m in 4 directions average.
 • Above figures are applied under operation in standard atmosphere conditions as per JIS D0006.
 • "Standby Output" rating is applied only under intermittent or emergency operation for approximately 1 hour.

Leak guard type
SDG-L series
 <20~400 kVA>

Leak guard type
 Three / Single Phase capable
 multi output
SDG-LA series
 <20~100 kVA>

Standard type
SDG-3B1 series
 <10.5~150 kVA>

Ultra Super Silent type
 Leak guard

SDG-ZL series
 <20~45 kVA>

Ultra Super Silent type
 Leak guard
 3/Single Phase capable multi output

SDG-ZLA series
 <20~45 kVA>

Built-in Inverter type
 Large fuel tank mounted Leak guard

V-Pump series
 <20~60 kVA>

Leak guard type
 Large fuel tank mounted
SDG-LX series
 <10.5~150 kVA>

Leak guard type
 Three / Single Phase capable multi output
 Large fuel tank mounted
SDG-LAX series
 <10.5~100 kVA>

Ultra Super Silent type
SDG-AS series
 <20~60 kVA>

Ultra Super Silent type
 Leak guard
 Large fuel tank mounted

SDG-ZLX series
 <20~45 kVA>

Ultra Super Silent type
 Leak guard
 3/Single Phase capable multi output
 Large fuel tank mounted

SDG-ZLAX series
 <20~45 kVA>



Line-up models

	Prime Output <kVA>	50Hz										
		10.5	20	37	50	80	100	125	200	270	350	
		60Hz										
		13	25	45	60	100	125	150	220	300	400	
Leak guard	SDG-L	[Available]										
Large tank leak guard	SDG-LX	[Available]										
3 and Single phase capable dual output	SDG-LA	[Available]										
Large tank leak guard/3 and Single phase capable dual output/Able generator	SDG-LAX	[Available]										
Standard	SDG-3B1	[Available]										
Ultra Super Silent	SDG-AS-3B1/7B1	[Available]										
Ultra Super Silent/Leak guard	SDG-ZL	[Available]										
Ultra Super Silent/Large tank leak guard	SDG-ZLX	[Available]										
Ultra Super Silent/3 and Single phase capable dual output	SDG-ZLA	[Available]										
Ultra Super Silent/Large tank leak guard/3 and Single phase capable dual output/Able generator	SDG-ZLAX	[Available]										
Built-in Inverter	V-Pump	[Available]										

List of Optional Equipment

● : Standard equipment ○ : Option upon manufacture

Model / Item	SDG13	SDG25	SDG45	SDG60	SDG100	SDG125	SDG150	SDG220	SDG300	SDG400	SDG500	SDG610	SDG800
Automatic Starting System	○*	○*	○	○	○	○	○	○	○	○	○	○	○
With built-in battery charger	○*	○*	○	○	○	○	○	○	○	○	○	○	○
Manual Operated Parallel Operation System	—	—	—	—	—	●	●	●	●	●	●	●	●
Auto-Parallel Operation System	—	—	—	—	—	—	—	—	—	○	○	○	○
Fuel Auto-feed System	○	○	○	○	○	○	○	○	○	○	○	○	○
Three way valve Fuel Feed from outside tank	●	●	●	●	●	●	●	●	●	●	●	●	●
Engine Oil Auto-Feed System	—	○ S:○ AS:—	○	○	○	○	○	○	○	○	○	○	○
Flange at outlet of muffler	○	○	○	○	○	○	○	○	○	○	○	○	○
Protection against salt damage	○	○	○	○	○	○	○	○	○	○	○	○	○
Anti-theft cover	○	○	○	○	○	○	○	—	—	—	—	—	—
Engine Oil Pressure Meter	○	○	○	○	●	●	●	●	●	●	●	●	●

* Automatic starting system and battery charger cannot be built into at the same time.

General purpose Emergency backup Generator for failure of utility source SDG-E series

When an electric utility outage takes place, the set is automatically switched from the utility source to the backup generator, and when the utility power is restored, it is automatically switched back to the utility power source.

Three Attempts starting operation

If the engine failed to start up after 10 seconds cranking, additional two more attempts to start will be included to ensure the engine to be started up. "Difficulty in starting" indication lamp will only be on after engine failed to start after three attempts.

Trial (Test) operation availability

Test operation is available for maintenance and inspection as standard function.

Built-in Battery charger

ATS panel incorporates a battery charger to keep charging the battery of a standby generator.

Fault Indication Lamp

Generator fault indication lamp is equipped on the ATS panel. This is a consolidated indication for out of fuel, fuel filter clogging, low engine oil pressure, high coolant temperature, overcurrent and earth leakage.

Specifications of ATS panel

	For SDG13/25	For SDG45/60	For SDG100/125/150	For SDG220/300	For SDG400/500/610
Type	Wall mounted type		Floor standing type		
Rated voltage(V)	AC 200/220				
Control voltage(V)	DC 12		DC 24		
L×W×H(mm)	850×550×300	1,000×600×300	1,600×650×300	1,700×800×500	1,700×750×600
Mass(kg)	57	75	125	260/280	300



ATS panel

* ATS panel in photo is ground standing type for outdoor use. (upon customer' request before production process this is available.)

Features and benefits

1. Simplified construction incorporating all required functions
2. Light-weight and compact
3. Easy connection between ATS panel and generator

Examples of Backup Power Supply

- Poultry facilities and Swinery
- Gas-station
- Housing, Villa residence, Office and Factory
- Communication station, Broadcasting station, Lighting facilities and Traffic signal station
- On-line system of bank, Credit union, Agricultural cooperative association
- Battery for portable telephones base
- Facilities for draining water for underground engineering construction

Selection of Optimum Generators

Example of AC arc welder

● AC arc welder is in general single phase load. So when a three phase generator is used for single phase load, it shall be equally connected to three phase.

● Three times more generating power is required for single load welding.

Generators are capable of operating following numbers of arc welders.

Model	SDG25		SDG45		SDG60		SDG100		SDG125		SDG150		SDG220		SDG300		SDG400		SDG500		SDG610		SDG800		
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	50	60	
180A	1	1	3	3	3	5	7	8	10	12	13	14	18	20											
200A		1	2	2	3	4	6	6	8	9	10	11	15	16											
250A			2	2	3	3	5	6	7	8	9	10	14	15											
300A				1	2	2	3	3	5	6	6	7	10	11	14	17	19	21	24	27	30	33	35	39	
400A						1	2	3	3	3	5	5	6	7	9	12	13	14	16	19	21	24	25	27	
500A								2	3	3	3	3	5	6	7	10	11	12	13	15	17	18	20	23	

Note: Numbers of welders in the above table are for such ones without condensers equipped for reference purpose only. When using generators for extremely low efficient welders, reduce the numbers of welders. When using generators for AC arc welders equipped with condenser, it is necessary to be very careful for self-exciting phenomena (Output voltage of generator extremely increases in case of no load or light load).

The above table shows the numbers of welders when operating 40%. In case of more Percentage than 40%, reduce the numbers of welders. When using generators for more welders than 2 units, connect evenly it to each welder, not concentrating one unit only.

Example of electric motors (three-phase squirrel-cage motor)

Engine generators are used for large and small various type electric motors.

In general capacity of electric motor is specified in kW or PS.

This shows motor output capacity, not motor input capacity or not required to operate motor (machine). The relation between motor output and input is shown in the following formula.

$$1 \text{ PS} = 0.7355 \text{ kW}$$

$$\text{Efficiency} = 90\% \text{ (three phase induction motor)}$$

$$\text{Power factor} = 0.8 \text{ (three phase induction motor)}$$

$$\frac{\text{Output(kW)}}{\text{Efficiency}} = \frac{0.7355 \times \text{Output(PS)}}{\text{Efficiency}} = \text{Input(kW)}$$

$$\frac{\text{Input(kW)}}{\text{Power factor}} = \text{Input(kVA)}$$

Motor starting capacity

Model	SDG13		SDG25		SDG45		SDG60		SDG100		SDG125		SDG150																			
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60	50	60	50	60																		
Generator(kVA)	10.5	13	20	25	37	45	50	60	80	100	100	125	125	150																		
Motor capacity	Direct start		Simultaneously(kW)		3.4		3.9		5.6		6.5		10.3		12.0		14.6		16.3		22.4		27.5		30.1		37.0		37.0		43.9	
	By turns(kW)		6.5		7.7		13.0		16.2		24.0		29.2		32.4		39.0		51.9		64.9		64.9		81.2		81.2		97.2			
	λ-Δ start(open)(kW)		5.2		5.8		8.4		9.7		15.5		18.1		19.4		24.5		33.5		41.3		45.2		55.5		55.5		65.8			
	λ-Δ start(closed)(kW)		6.5		7.7		13.0		16.2		24.0		30.1		32.4		39.0		51.9		64.9		64.9		81.1		81.1		97.2			

Model	SDG220		SDG300		SDG400		SDG500		SDG610		SDG800																	
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60	50	60																
Generator(kVA)	200	220	270	300	350	400	450	500	555	610	700	800																
Motor capacity	Direct start		Simultaneously(kW)		58		65		78		88		112		125		138		156		155		163		219		250	
	By turns(kW)		126		143		162		194		228		260		292		324		357		390		454		518			
	λ-Δ start(open)(kW)		88		98		118		132		168		187		206		234		232		245		326		372			
	λ-Δ start(closed)(kW)		126		143		162		194		227		260		292		324		357		390		454		518			

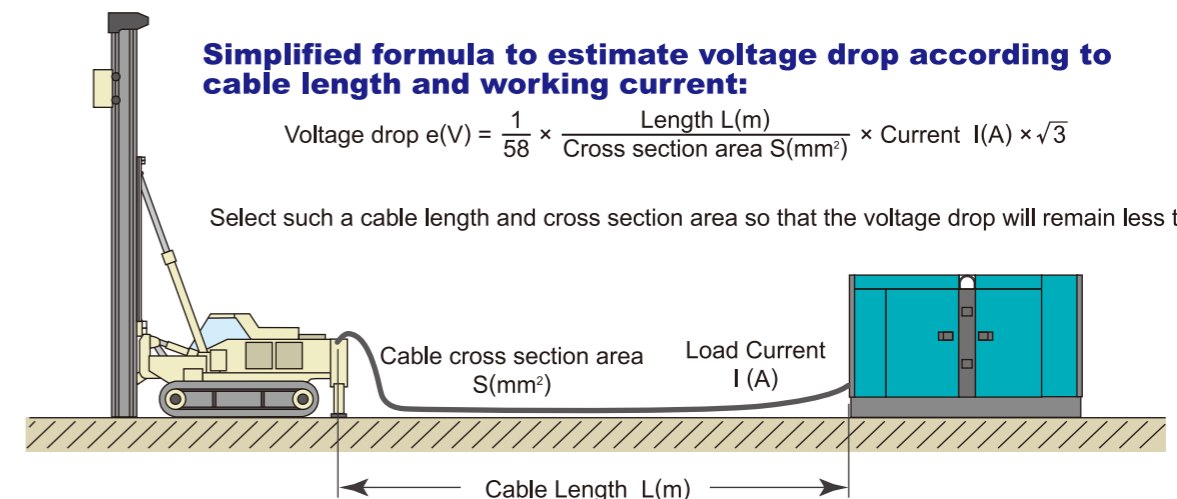
* The motor capacities in the above table are only for reference purpose. The generator capacities vary upon instantaneous voltage drop, motor start class, efficiency, old and new type machine.

● The instantaneous voltage drop when motor starts shall be within 30% of no load voltage. ● Motor starting kVA shall be 7 kVA per one (1) kW.

● Motor efficiency shall be 85% and load 90%.

● When operating many motor loads (starting by turns one by one) and total capacity of the loads within the values in the above table, it can operate as many loads as expected. But the total capacity of the motors which are operated first shall be within the capacity at direct start instantaneous start.

● The engine load of the engine complete with turbo-charger sometimes may be influenced by engine net average efficient pressure.



List of current values at a glance

Unit: ampere (A)

Model	SDG13	SDG25	SDG45	SDG60	SDG100	SDG125	SDG150	SDG220	SDG300	SDG400	SDG500	SDG610	SDG800	
50Hz	200V	30.3	57.7	107	144	231	289	361	577	779	1,010	1,299	1,602	2,021
	380V	16.0	30.4	56.2	76.0	122	152	190	296	410	532	684	843	1,063
	400V	15.2	28.9	53.4	72.2	115	144	180	289	390	505	650	801	1,010
60Hz	220V	34.1	65.6	118	157	262	328	394	577	787	1,050	1,312	1,600	2,100
	440V	17.1	32.8	59.0	78.7	131	164	197	289	394	525	656	800	1,050

List of Neutral Point (N(O) terminal) Allowable Power

Model	SDG13		SDG25		SDG45		SDG60		SDG100		SDG125		SDG150	
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60	50	60	50	60
● 200/220V														
Voltage(V)	115	127	115	127	115	127	115	127	115	127	115	127	115	127
Allowable ampere 3 phase average(A)*1	24.2	27.3	46.2	52.5	85.6	94.4	115	126	185	210	231	262	289	315
Output ratio	80*2													
Allowable ampere Single phase(A)	30.3	34.1	57.7	65.6	107	118	144	157	231	262	289	328	361	394
Output ratio	100*2													
● 400(380)/440V														
Voltage(V)	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254
Allowable ampere 3 phase average(A)*1	$\frac{12.2}{(12.8)}$	13.7	$\frac{23.1}{(24.3)}$	26.2	$\frac{42.7}{(45.0)}$	47.2	$\frac{57.8}{(60.8)}$	63.0	$\frac{92.9}{(96.8)}$	105	$\frac{115}{(122)}$	131	$\frac{144}{(151)}$	158
Output ratio	80*2													
Allowable ampere Single phase(A)	$\frac{15.2}{(16.0)}$	17.1	$\frac{28.9}{(30.4)}$	32.8	$\frac{53.4}{(56.2)}$	59.0	$\frac{72.2}{(76.0)}$	78.7	$\frac{115}{(121)}$	131	$\frac{144}{(152)}$	164	$\frac{180}{(189)}$	197
Output ratio	100*2													

Model	SDG220		SDG300		SDG400		SDG500		SDG610		SDG800	
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60	50	60
● 200/220V												
Voltage(V)	115	127	115	127	115	127	115	127	115	127	115	127
Allowable ampere 3 phase average(A)*1	462	462	390	394	505	525	650	656	801	800	1,010	1,050
Output ratio	80*4		50*3									
Allowable ampere Single phase(A)	577	577	390	394	505	525	650	656	801	800	1,010	1,050
Output ratio	100*2		50*3									
● 400(380)/440V												
Voltage(V)	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254	$\frac{231}{(219)}$	254
Allowable ampere 3 phase average(A)*1	$\frac{231}{(243)}$	231	$\frac{312}{(328)}$	315	$\frac{404}{(426)}$	420	$\frac{520}{(547)}$	525	$\frac{641}{(674)}$	640	$\frac{808}{(851)}$	840
Output ratio	80*4											
Allowable ampere Single phase(A)	$\frac{289}{(304)}$	289	$\frac{390}{(410)}$	394	$\frac{505}{(532)}$	525	$\frac{650}{(684)}$	656	$\frac{801}{(843)}$	800	$\frac{1,010}{(1,064)}$	1,050
Output ratio	100*2											

*1 When you use single phase with N(O) terminal at the same time for each phase from Model SDG13S/25S/AS to SDG150S/AS, the unbalance of current value for each phase should be kept within 50%. When the current values exceed the limit, please note that the output voltages for each phase may be unbalanced.

*2 Output ratio shows an allowable output figure of the rated current. (Rated output 100% = it is allowable to use the rated current value until 100%.)

*3 Output ratio shows an allowable output figure of the rated current. (Rated output 50% = it is allowable to use the rated current value until 50%.)

*4 Output ratio shows an allowable output figure of the rated current. (Rated output 80% = it is allowable to use the rated current value until 80%.)

Leakage Protection Device and Grounding Method

Leakage Protection Device

This machine is equipped with a leakage relay which detects leakage caused by a defective insulation of working load to prevent an accident such as an electric shock by shutting down the circuit. However, for additional safety, install ground fault circuit interrupter (GFCI) for each load equipment close to the load equipment. The sensitivity current of the leakage relay is 30mA.

Grounding Method

<Procedure>

Connect a lead wire fitted with a ground rod to the leakage relay grounding terminal (E) of the three-phase output terminal board.

1. Connect the generator machine ground terminal of the package to ground.
2. Be sure to ground the package of the load equipment as well.
3. These grounding must be carried out in accordance with local regulations.

