

**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





Easier Operation and more developed generator

AIRMAN SDG Series

Since 1970, Airman has developed and sold the brash-less generators, our advanced generators, which is developed by our long experience and original technologies, succeeded to spread through our new machines.

Airman will strive to develop our products which has the concept “Environmentally and ECO” friendly day by day.

Export Standard – for the 2nd Emission Control Area.

	Fuel Tank	Model Name		13	25	45	60	100	125	150	220	300	400	500	610	800	Page
		Power Source	Prime Model	50Hz 10.5 13	50Hz 20 25	50Hz 37 45	50Hz 50 60	50Hz 80 100	50Hz 100 125	50Hz 125 150	50Hz 200 220	50Hz 270 300	50Hz 350 400	50Hz 450 500	50Hz 555 610	50Hz 700 800	
S-type (Super Silent)	Standard Tank	Single Voltage	SDG S-3A8														P5
			SDG SE-3B2														
	Standard Tank	Dual Voltage	SDG S-3B1/3B2														P6
			SDG S-3A5/3A6														
			SDG S-3A6/3A7 (Manual Parallel)														P6,7
	Big Tank + Oil fence		SDG S 7A6														P9
ZL/AS-type (Ultra Super-Silent Model)	Standard Tank	Dual Voltage	SDG ZL 5B1/5B2														P8
			SDG AS 3A6														
	Big Tank + Oil fence		SDG AS 7A6														P9

Please refer to page 10 for the emission control stage 3 of SDG series.

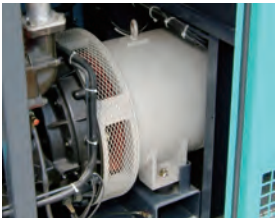
High Performance

Outstanding generation performance

Due to the big drop of Transient Reactance and the reinforcement of the damper winding, we are succeeded to improve our brushless alternator much tolerance dose and few distortion of the wave form.
It is suitable for use of inverter, thyristor, PC, lightning, precision instrument, measurement hardware.

Preset Voltage Regulation
within 0.5%

※ some models are excluded.



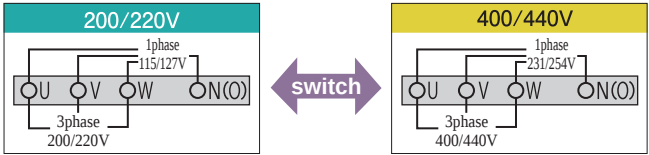
Cation Electrodeposition Coating

We have adopted the electrodeposition coating, baking finish coating for weather proof, and anti-corrosion and salt pollution.

Dual Voltage: Standard Specification

(excluding SDG25S-3A8/R, SDG45SE)

We can convert 200/220V ⇄ 400/440V of 3 phase voltage each other by switching short-circuit plates in the control box. When the engine is started, the indicator light in the operation box is turn on , and we can recognize the voltage level immediately.



Auto Parallel Operation

(more than SDG400, option upon manufacture)

By attached controller in the generator, it is synchronized and shared “stop and go running” automatically.

And according to the load, Up to 8 units of machines will be operated each other.



Manual Parallel Operation

(more than SDG150)

With our well-controlled AVR (Automatic Voltage Regulator) and CCR (Cross Current Regulator), Machine is controlled by the Manual Parallel Operation. (When they are running, we must always monitor them.)



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

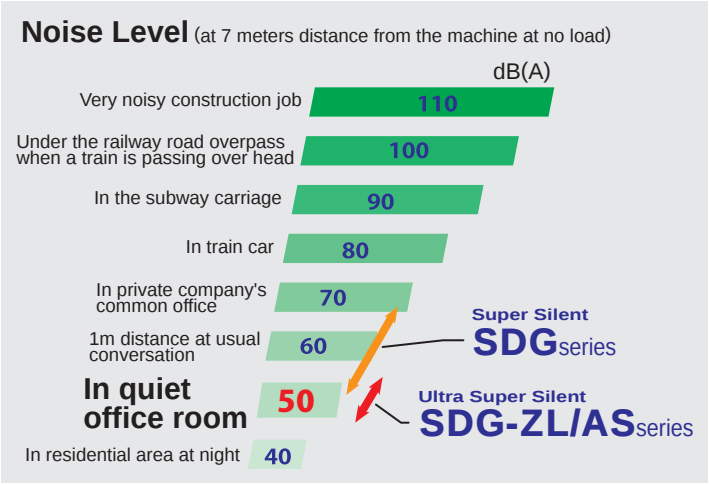
SDG25/45ZL

SDG60AS~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

② Voltmeter

③ Ammeter

④ Frequency meter

⑤ Fuel gauge with hour meter

⑥ Water temperature meter

⑦ Three phase circuit breaker

⑧ Voltage regulator
- ⑨ Current selector switch

⑩ Leakage relay

⑪ Output indicator lamp

⑫ Warning lamps (For details, see the followings)

⑬ Starter switch

⑭ Panel light switch

⑮ Operation mode selection switch

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.



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.

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			
● Generator																									
Type		Dual Voltage				Single Voltage				Dual Voltage				Single Voltage											
Frequency	Hz	50	60	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	37	45										
Standby Output	kVA	11.5	14.3	22	27.5	22	27.5	22	27.5	37	45	37	45	37	45										
Voltage	V	200/400	220/440	200/400	220/440	400	440	400	440	200/400	220/440	400	440	200/400	220/440										
Power factor	%	3-phase 80 (lagging) / Single-phase 100																							
● Engine																									
Make/Model		KUBOTA D1503-K3A				KUBOTA V2403-K3A				KUBOTA V2403-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)	35(47.6)	42.5(57.8)										
Rated speed	min ⁻¹	1500	1800	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)				1220(48.0)											
Dry (Operating) weight	kg	520(580)				610(680)				625(695)				610(680)											
● 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	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.



SDG60S



SDG125S/150S



SDG220S



SPECIFICATIONS

Model		SDG60S -3A6		SDG100S -3A5		SDG125S -3A6		SDG150S -3A6		SDG220S -3A7	
● Generator											
Type		Dual Voltage								Dual Voltage (Manual parallel)	
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		HINO J08C-UD		KOMATSU SAA6D125E-2B	
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)	
Dry (Operating) weight	kg	1120(1260)		1640(1870)		2050(2300)		2180(2430)		3290(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									



SDG300S



SDG500S



SDG610S



SPECIFICATIONS

Model	SDG300S -3A6			SDG400S -3A6		SDG500S -3A6		SDG610S -3AK6		SDG800S -3A7	
● Generator											
Type		Dual Voltage (Manual parallel)									
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Prime Output	kVA	270	300	350	400	450	500	555	610	700	800
Standby Output	kVA	297	330	385	440	472.5	525	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
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		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)	613(834)	752(1123)
Rated speed	min ⁻¹	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Fuel tank capacity	L	490								730	
Engine oil amount	L	62		79		91.5		119		193.4	
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)		5350(210.6)〈5665(223)*〉	
Overall width	mm(inch)	1400(55.1)				1600(63.0)				1900(74.8)	
Overall Height	mm(inch)	1760(69.3)		2040(80.3)		2090(82.3)		2350(92.5)		2450(96.5)	
Dry (Operating) weight	kg	3790(4290)		5120(5670)		6170(6750)		7320(7960)		10370(11310)	
● Other											
Sound power level in decibels	dB	98		99				102			
Sound pressure level	dB(A)	66	69	67	70	67	70	69	72	69	74
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. * Dimensions with visor
• 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.

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

ZL/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.



SDG25ZL



SDG45ZL



SDG60AS



SDG100AS



SDG150AS

SPECIFICATIONS

Model		SDG25ZL -5B1		SDG45ZL -5B2		SDG60AS -3A6		SDG100AS -3A6		SDG150AS -3A6	
● 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 V3600-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)	35(47.6)	42.5(57.8)	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)		1920(75.6)		2090(82.3)		2700(106.3)		3200(126.0)	
Overall width	mm(inch)	800(31.5)		1080(42.5)		950(37.4)		1140(44.9)		1200(47.2)	
Overall Height	mm(inch)	1260(49.6)		1490(58.7)		1300(51.2)		1500(59.1)		1630(64.2)	
Dry (Operating) weight	kg	800(880)		1210(1380)		1280(1440)		1870(2100)		2590(2850)	
● Other											
Sound power level in decibels	dB	79		81		83		84		88	
Sound pressure level	dB(A)	49	51	50	53	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.

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)	
Dry (Operating) weight	kg	1370(1725)		1290(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
Large fuel tank mounted

SDG- LX series
〈10.5~150 kVA〉

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

SDG- LAX series
〈10.5~100 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〉

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〉



Built-in Inverter type
Large fuel tank mounted
Leak guard
V-Pump series
〈20~60 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												
Leak guard + Large tank leak guard	SDG-LX												
Leak guard + 3/Single Phase capable multi output	SDG-LA												
Leak guard + 3/Single Phase capable multi output + Large tank leak guard	SDG-LAX												
Standard	SDG-3B1												
Ultra Super Silent	SDG-AS-3B1/7B1												
Ultra Super Silent + Leak guard	SDG-ZL												
Ultra Super Silent + Leak guard + Large tank leak guard	SDG-ZLX												
Ultra Super Silent + Leak guard + 3/Single Phase capable multi output	SDG-ZLA												
Ultra Super Silent + Leak guard + 3/Single Phase capable multi output + Large tank leak guard	SDG-ZLAX												
Built-in Inverter	V-Pump												

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.

Automatic Driving

When a power outage is detected in the commercial power supply, the preheated generator will start up. Once the voltage of the generator is established, the load power source will be switched from the commercial power supply to the generator power supply. When the commercial power supply is restored, the load power source will be switched back to the commercial power supply from the generator power supply after 30 seconds. Subsequently, the generator will undergo cooling operation for 60 seconds and then stop.

Repeated Start-up

To ensure a successful start-up, if the engine fails to start even after cranking for 10 seconds, it will automatically crank again. If the engine fails to start after three attempts, the abnormal indicator light will illuminate indicating a start-up blockage.

Test Operation Function

The test operation function is equipped as standard for maintenance and inspection purposes. You can manually operate the generator using the operation switch. Additionally, you can select whether to switch the load power source from the commercial power supply to the generator power supply using the test operation power switch.

Automatic Maintenance Operation Function

In addition to manual maintenance (testing) operation, the automatic maintenance operation function, which automatically performs scheduled maintenance (testing) operation according to a schedule, is also equipped as standard.

Specifications of ATS panel

	For SDG13/25	For SDG45/60	For SDG100/125/150	For SDG220/300	For SDG400/500/610/800
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	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 efficientwelders, 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 PS = 0.7355 kW
Efficiency = 90% (three phase induction motor)
Power factor = 0.8 (three phase induction motor)

Output (kW) / Efficiency = (0.7355×Output (PS) / Efficiency) = Input (kW)

Input (kW) / Power factor = 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	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	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	65.8
Motor capacity	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	97.2

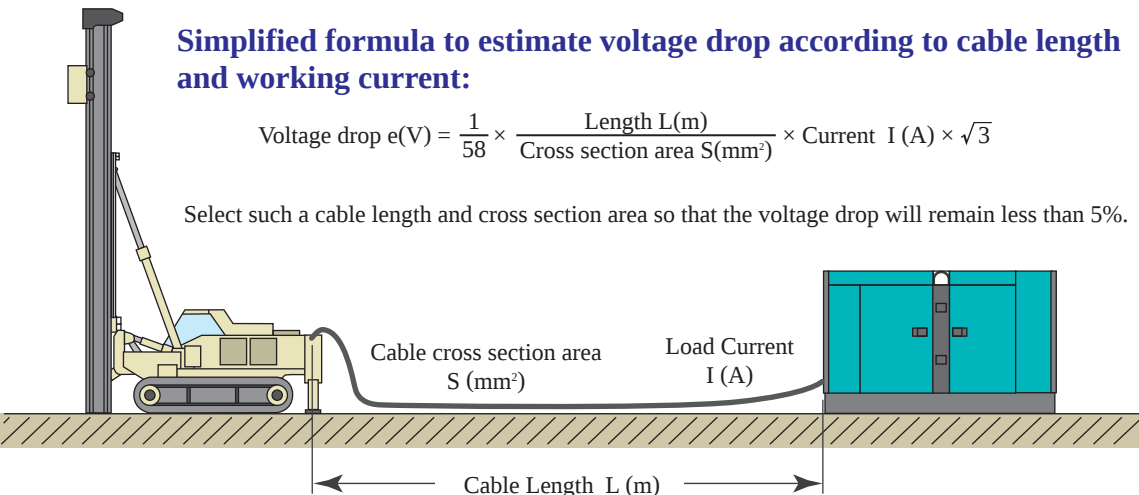
Model	SDG220		SDG300		SDG400		SDG500		SDG610		SDG800	
Frequency (Hz)	50	60	50	60	50	60	50	60	50	60	50	60
Generator (kVA)	200	220	270	300	350	400	450	500	555	610	700	800
Motor capacity	Direct start											
	Simultaneously (kW)	58	65	78	88	112	125	138	156	155	163	219
	By turns (kW)	126	143	162	194	228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

- * 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 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.
- Motor starting kVA shall be 7 kVA per one (1) kW.

Simplified formula to estimate voltage drop according to cable length and working current:

Voltage drop e(V) = 1/58 × (Length L(m) / Cross section area S(mm²)) × Current I (A) × √3

Select such a cable length and cross section area so that the voltage drop will remain less than 5%.



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
	380V	16.0	30.4	56.2	76.0	122	152	190	296	410	532	684	843
	400V	15.2	28.9	53.4	72.2	115	144	180	289	390	505	650	801
60Hz	220V	34.1	65.6	118	157	262	328	394	577	787	1,050	1,312	1,600
	440V	17.1	32.8	59.0	78.7	131	164	197	289	394	525	656	800

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 *4													
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)	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254	²³¹ ₍₂₁₉₎ 254
Allowable ampere 3 phase average (A)	*1 ^{12.2} _(12.8)	13.7	^{23.1} _(24.3)	26.2	^{42.7} _(45.0)	47.2	^{57.8} _(60.8)	63.0	^{92.0} _(96.8)	105	¹¹⁵ ₍₁₂₂₎	131	¹⁴⁴ ₍₁₅₁₎	158
Output ratio	80 *4													
Allowable ampere Single phase (A)	^{15.2} _(16.0)	17.1	^{28.9} _(30.4)	32.8	^{53.4} _(56.2)	59.0	^{72.2} _(76.0)	78.7	¹¹⁵ ₍₁₂₁₎	131	¹⁴⁴ ₍₁₅₂₎	164	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)	²³¹ ₍₂₁₉₎	254	²³¹ ₍₂₁₉₎	254	²³¹ ₍₂₁₉₎	254	²³¹ ₍₂₁₉₎	254	²³¹ ₍₂₁₉₎	254	²³¹ ₍₂₁₉₎	254
Allowable ampere 3 phase average (A) *1	²³¹ ₍₂₄₃₎	231	³¹² ₍₃₂₈₎	315	⁴⁰⁴ ₍₄₂₆₎	420	⁵²⁰ ₍₅₄₇₎	525	⁶⁴¹ ₍₆₇₄₎	640	⁸⁰⁸ ₍₈₅₁₎	840
Output ratio	80 *4											
Allowable ampere Single phase (A)	²⁸⁹ ₍₃₀₄₎	289	³⁹⁰ ₍₄₁₀₎	394	⁵⁰⁵ ₍₅₃₂₎	525	⁶⁵⁰ ₍₆₈₄₎	656	⁸⁰¹ ₍₈₄₃₎	800	^{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

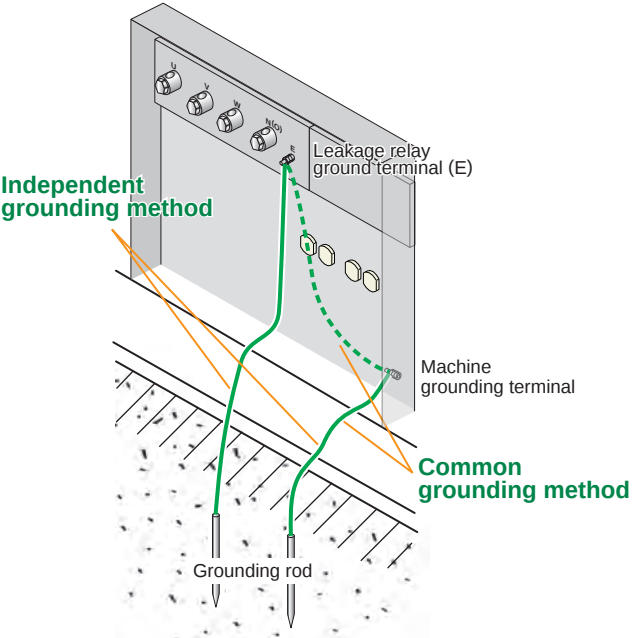
Leakage Protection Device

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.



Memo