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

Niigata plant:

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

ISO 9001
ISO 14001

ISO9001 : JQA-0581
ISO14001 : JQA-EM4670

⚠ SAFETY

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

AIRMAN®

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DISTRIBUTOR :

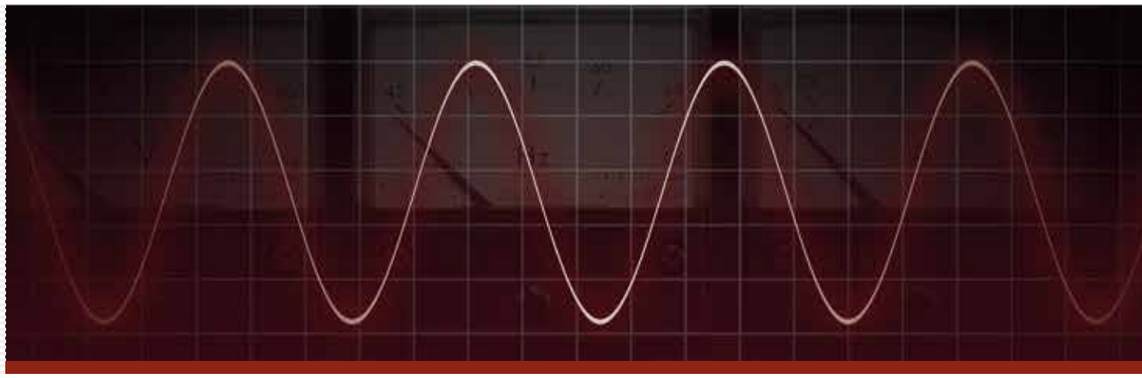
No.02 En-SDG JPN Stage3 20-02 ⓙ

Diesel Engine Generator
For JPN Stage3

AIRMAN®

Diesel Engine Generator
SDG series

Output 10.5kVA～400kVA



SDG60L

SDG45LAX

HOKUETSU INDUSTRIES CO., LTD.

Easier Operation and more advanced 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.

	Prime kVA	50Hz	10.5	20	37	50	80	100	125	200	270	350
		60Hz	13	25	45	60	100	125	150	220	300	400
Certified Japanese diesel engine emission control Stage3	Leak guard	SDG-L										
	Large tank leak guard	SDG-LX										
	Standard	SDG-3B1										
	Oil fence	SDG-7B1										
	Ultra Super Silent	SDG-AS-3B1/7B1										
	3 and Single phase capable dual output	SDG-LA										
	Large tank leak guard/ 3 and Single phase capable dual output/ Able generator	SDG-LAX										

Certified Japanese diesel engine emission control Stage3

Leak guard

SDG-L SERIES

〈20～400 kVA〉

Large fuel tank mounted Leak guard

SDG-LX SERIES

〈10.5～100 kVA〉

▸▸ P.07

Certified Japanese diesel engine emission control Stage3

Standard Engine Generator

SDG-3B1

〈10.5～150 kVA〉

Oil fence mounted Engine Generator

SDG-7B1

〈80～150 kVA〉

Ultra Super Silent Engine Generator

SDG-AS

〈20～60 kVA〉

▸▸ P.11

Certified Japanese diesel engine emission control Stage3

3/Single Phase capable multi output

SDG-LA SERIES

〈20～100 kVA〉

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

SDG-LAX SERIES

〈20～100 kVA〉

▸▸ P.17

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 invertor, thyristor, PC, lightning, precision instrument, measurement hardware.

Preset Voltage Regulation
within 0.5%

Portable AC (Alternating current) generator driven by diesel engine

These products must be in accordance with JEM1398 portable generator driven by diesel engine. * JEM1398 : The Japan electrical manufacturers' association regulation.

Cation Electrodeposition Coating

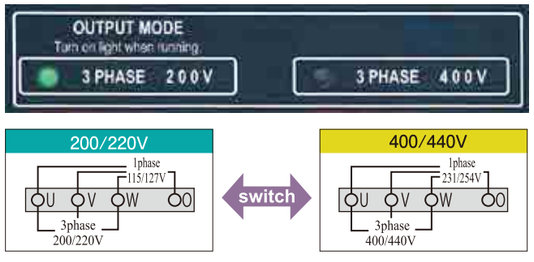
(up to SDG400)

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

Dual Voltage: Standard Specification

(From SDG45 to SDG400)

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.



Portable generator facility

These products are certified in accordance with technological standards by N E G A (Nippon Engine Generator Association).

Auto Parallel Operation

(More than SDG150)

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

(From SDG150S to SDG400S)

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.)

Big capacity single-phase output

It is attached an standard external connection terminal which can take single phase output in case of SDG25 × 1set, SDG45-SDG150 ×2sets.

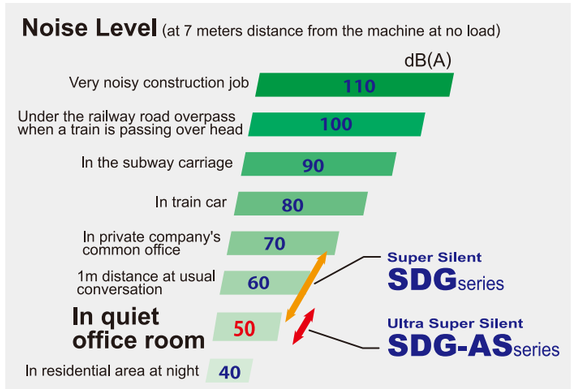
Environmental resistance

Silences

We are succeeded to be silent by adopting the silent engine, and the high-performance muffler, the special exhaust-duct structure.
Furthermore we are succeeded to achieve more silent noise level by adopting the perfect sealed panel and super-silent "intake duct".
And we have achieved less vibration by applying the new support method of the muffler.

Super Silent
SDG13S～220S
Ultra Super Silent
SDG25AS～150AS

Super Silent
SDG300S～400S



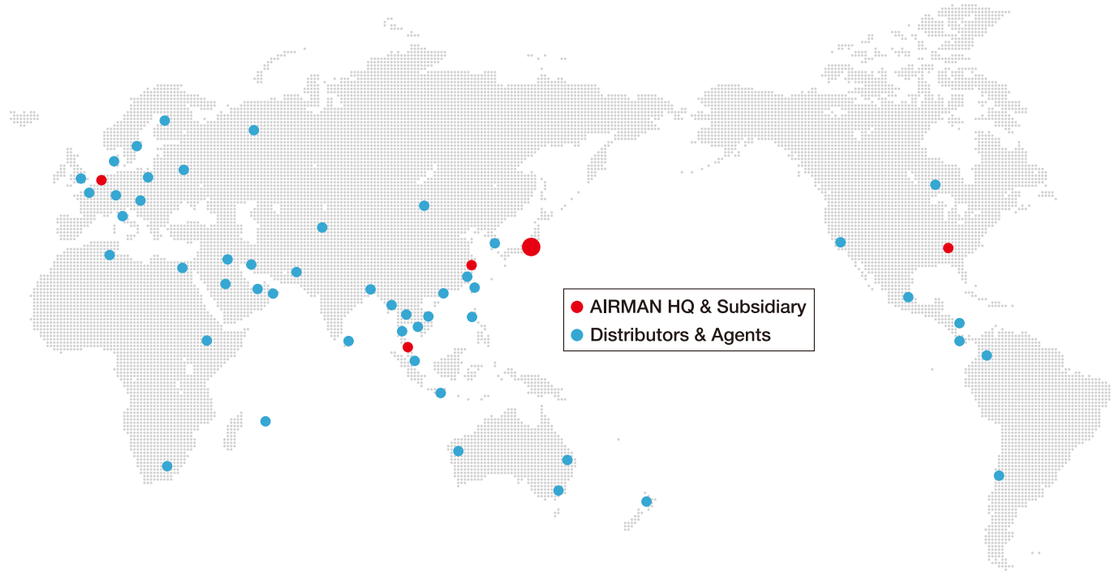
Compliant with emissions regulations

SDG13-400 is applicable for the regulation of Japanese gas emission Stage 3.

Blow-by gas (SDG13～220)

They are applied PCV (Positive crankcase ventilation) system which blow-by gas is recirculated internally to avoid the carbon clogging. They are environmentally friendly engines.

AIRMAN Service network



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 – SDG400]
We are mounting the quick-start engine which is improved turbo and governor for using the hand-auger or vibro-hammer.

Electronic Governor

Rotation speed adjustments can be easily and stable engine rotation speed can be obtained.
Frequency changing can be done easily by a switch (idling (warming up gas) ⇔ running)

Control Box

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

SDG60L Panel

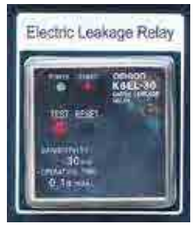
① 200V,400V signals
② Alarm lamp
③ Panel light
④ Frequency meter
⑤ Amp meter
⑥ Voltage meter
⑦ Voltage controller
⑧ 3Phase breaker
⑨ Single phase breaker
⑩ Water temperature meter
⑪ Fuel Meter & Time meter
⑫ Electric Leakage Relay
⑬ Starter switch
⑭ Frequency switching switch
⑮ Frequency adjustment switch
⑯ Operation Mode switching switch

Safety

Various kinds of safety devices

Over current / short circuit protection device
At overload or short circuit, the circuit breaker will shut off for protecting the generator.

Earth leakage protection device
At the time of electric leakage, the alarm lamp lights up, and the three-phase / single-phase breaker shut off.



Oil Fence Alarm
If fuel, oil, water, etc. accumulate in the oil fence by more than a specified amount, it will be announced by an alarm lamp on the monitor.

Main alarm and emergency stop

Model	Over Rotating	Oil level down	Water Temp. High	Charge Failure	Filter Clog	Over Current· Short	Leakage
SDG13～220	■	■	■	■	□	△	△
SDG300/400	■	■	■	□	□	△	△
SDG60/100/150/300	■△	■△	■△	□	□	△	△
SDG220/400	■	■	■	□	□	△	△

■: Alarm lamp on or blink + Engine emergency stop
□: Alarm Lamp on
△:Breaker shut down

Easy maintenance

Easy maintenance

Open the right-side doors, and it is easily access for daily checking (ex. Oil check, coolant check).

Maintenance cycle

(hrs)

Item / Model	Engine oil	Oil filter	Fuel filter	Air Element
SDG13/25	250 *1	500 *1	500	1,000
SDG45～220	500 *1	500 *1	500	1,000
SDG300～400	500 *2	500 *2	500	1,000

*1 First time exchange 50hrs *2 First time exchange 250hrs

Panel structure

The bonnet adopts a piling-up structure based on the panel structure, improving disassembly / assembly at the time of maintenance.
(Exclude SDG100S)

Radiator inspection・cleaning

By removing the front cover and split fan shroud on both sides. Inspecting and cleaning the radiator can be done easily. Larger-sized models ≧ 220 kVA have inspection windows on the front cover makes easier to inspect and clean. In addition, the L / LX / LA / LAX series has mounted an inspection and cleaning door for the radiator cleaning on the front cover.
(Exclude SDG13L/25L)

Flat frame

(SDG-3B1/7B1series)

It is a flat frame structure in which the inside of the machine can be cleaned easily.
(Exclude SDG100S/60AS/150AS)

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.

SDG-L

Leak guard engine generator

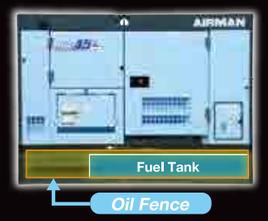
SDG-[L]

L = Prevent outflow of oil etc. as much as possible.

Prevent as much as possible outflow of oil etc. Oil fence mounted “LEAK GUARD” type

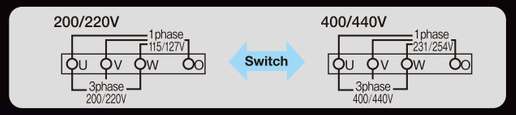
In case of leakage of fuel or oil on the oil fence, it will prevent leakage to the outside as much as possible. Space capacity of the oil fence has secured more than ×100% (fuel + oil + cooling water).

*All oil leaks are not guaranteed.

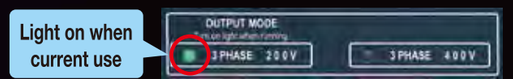


Dual voltage is standard.

3 phase Voltage can switch to 200/220V ⇔ 400/440v
When starting the engine, the three-phase output voltage indicator on the control panel lights and you can see the voltage being used at a glance.



Can see the voltage being used at a glance.



Drainage hose makes it easy to drain oil

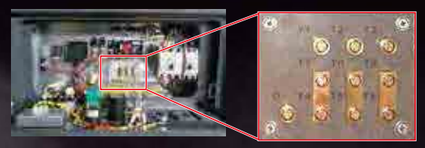
Engine oil discharge hose is equipped as standard.
It is easily possible to discharge the engine oil.

Equipped with a convenient earth bar storage box.

Equipped the earth bar box beside the frame.
You can store it with keeping attached the wire.

Bus bar type voltage switching board

To switch the voltage of three-phase output (200 / 220V ⇔ 400 / 440V), a bus bar type voltage switching board which can be switched easily is attached.



Equipped the emergency stop button.

Equipped the emergency stop button beside the operation panel.

Considered convenience Total heights below 1,350mm

By setting the total height of the SDG25L/45L/60L to 1350 mm or less.

*SDG25L is total height 1090mm

SDG45L model is equipped with less unburned fuel emissions Engine.

SDG45L model is equipped with less unburned fuel emissions engine in the low load, V3600-T-K3A which is applied swirl chamber type turbocharged engine.

SDG-LX

Large fuel tank mounted leak guard engine generator

SDG-[LX]

L = Prevent outflow of oil etc.as much as possible.
+
X = Large fuel tank.

Large fuel tank mounted

Large fuel tank mounted as standard. It makes possible long time operation without external fuel tank.

• LEAK GUARD

SDG25L-5B1

200 ↔ 400 Dual Voltage

SDG45L-5B2

200 ↔ 400 Dual Voltage

SDG60L-5B1

200 ↔ 400 Dual Voltage

SDG100L-5B1

200 ↔ 400 Dual Voltage

Item		Model	Leak Guard Type							
			SDG25L-5B1		SDG45L-5B2		SDG60L-5B1		SDG100L-5B1	
Generator										
Frequency		Hz	50	60	50	60	50	60	50	60
Power Supply			Dual Voltage							
3phase 4wires 400V Class	Prime output	kVA	20	25	37	45	50	60	80	100
	Stanby output	kVA	22	27.5	37	45	55	66	88	110
	Voltage	V	400	440	400	440	400	440	400	440
	Ampere	A	28.9	32.8	53.4	59.0	72.2	78.7	115	131
3phase 4wires 200V Class	Prime output	kVA	20	25	37	45	50	60	80	100
	Stanby output	kVA	22	27.5	37	45	55	66	88	110
	Voltage	V	200	220	200	220	200	220	200	220
	Ampere	A	57.7	65.6	107	118	144	157	231	262
Pole		P	4							
Power Factor			3-phase 0.8(lagging) / Single-phase 1.0							
Diesel Engine										
Model name			KUBOTA V2403-K3A		KUBOTA V3600-T-K3A		ISUZU BJ-4JJ1X		ISUZU BI-4HK1X	
System			4Cylinder, Swirl chamber		4Cylinder, Swirl chamber, Turbo-Charged		4Cylinder, Direct-Injection, Turbo-Charged, Intercooled			
Total displacement		L	2.434		3.62		2.999		5.193	
Rated output		kW	19.1	23.7	35.0	42.5	51.6	61.0	96.3	113.6
Rated rotation speed		min^{-1}	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil							
Fuel tank capacity		L	70		110		140		250	
Fuel consumption	50% Load	L/hr	3.0	3.8	4.9	6.1	5.7	7.1	9.9	12.8
	70% Load	L/hr	4.0	5.0	6.9	8.4	8.1	10.2	14.5	18.2
Engine Oil volume		L	9.5		13.2		15		20.5	
Coolant water volume		L	7.0		11		13.2		22.2	
Battery × unit			80D26R×1		80D26R×1		95D31R×1		170F51×1	
Weight Dimension										
Length × Width × Hight		mm	1,540×700×1,090		1,850×860×1,350		2,080×1,000×1,350		2,530×1,150×1,580	
Dry(Operating) weight		kg	675(750)		990(1,100)		1,200(1,340)		1,830(2,080)	
Emission, Noise										
Sound Power level LwA		dB	86	90	84	88	86	89	91	
Sound pressure level (7m 4direction/no load)		dB(A)	59	63	57	60	59	62	60	63
Emission control			JPN Stage 3							

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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

SDG220L-5B1

200 ↔ 400
Dual Voltage

SDG300L-5B1

200 ↔ 400
Dual Voltage

SDG400L-5B1

200 ↔ 400
Dual Voltage

Item \ Model			Leak Guard Type					
			SDG220L-5B1		SDG300L-5B1		SDG400L-5B1	
Generator								
Frequency		Hz	50	60	50	60	50	60
Power Supply			Dual Voltage					
3phase 4wires 400V Class	Prime output	kVA	200	220	270	300	350	400
	Stanby output		220	242	297	330	385	440
	Voltage	V	400	440	400	440	400	440
	Ampere	A	289	289	390	394	505	525
3phase 4wires 200V Class	Prime output	kVA	200	220	270	300	350	400
	Stanby output		220	242	297	330	385	440
	Voltage	V	200	220	200	220	200	220
	Ampere	A	577	577	779	787	1,010	1,050
Pole		P	4					
Power Factor			3-phase 0.8 (lagging) / Single-phase 1.0					
Diesel Engine								
Model name			ISUZU BH-6UZ1X		KOMATSU SAA6D125E-5-B		KOMATSU SAA6D140E-5-C	
System			6Cylinder, Direct-Injection, Turbo-Charged, Intercooled					
Total displacement		L	9.839		11.04		15.24	
Rated output		kW	203	230	234	259	310	357
Rated rotation speed		min-1	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil					
Fuel tank capacity		L	400		490		490	
Fuel consumption	50% Load	L/hr	22.9	26.5	31.1	35.8	41.5	49.7
	70% Load	L/hr	34.1	37.4	44.7	49.2	57.0	68.1
Engine Oil volume		L	41		61		84	
Coolant water volume		L	47.5		54		67.5	
Battery × unit			170F51×2		170F51×2		225H52×2	
Weight Dimension								
Length × Width × Hight		mm	3,550×1,380×1,770		4,000×1,500×1,850		4,500×1,500×2,090	
Dry(Operating) weight		kg	3,250 (3,660)		4,510 (5,020)		5,680 (6,220)	
Emission, Noise								
Sound Power level LwA		dB	90	94	93	98	96	101
Sound pressure level (7m 4direction/no load)		dB (A)	61	65	65	69	67	72
Emission control			JPN Stage 3					

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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.

• LARGE FUEL TANK & LEAK GUARD

SDG13LX-5B1

200 ↔ 400
Dual Voltage

SDG25LX-5B1

200 ↔ 400
Dual Voltage

SDG45LX-5B2

200 ↔ 400
Dual Voltage

SDG60LX-5B1

200 ↔ 400
Dual Voltage

SDG100LX-5B1

200 ↔ 400
Dual Voltage

Item \ Model			Large fuel tank & Leak Guard Type									
			SDG13LX-5B1		SDG25LX-5B1		SDG45LX-5B2		SDG60LX-5B1		SDG100LX-5B1	
Generator												
Frequency		Hz	50	60	50	60	50	60	50	60	50	60
Power Supply			Three ⇔ Single Phase Alternative Output		Dual Voltage							
3phase 4wires 400V Class	Prime output	kVA	–	–	20	25	37	45	50	60	80	100
	Stanby output		–	–	22	27.5	37	45	55	66	88	110
	Voltage	V	–	–	400	440	400	440	400	440	400	440
	Ampere	A	–	–	28.9	32.8	53.4	59	72.2	78.7	115	131
3phase 4wires 200V Class	Prime output	kVA	10.5	13	20	25	37	45	50	60	80	100
	Stanby output		11.55	14.3	22	27.5	37	45	55	66	88	110
	Voltage	V	200	220	200	220	200	220	200	220	200	220
	Ampere	A	15.15	17.05	57.7	65.6	107	118	144	157	231	262
Single phase 3wires 200V Class/ 100V Class	Prime output	kVA	6.1	7.5	–	–	–	–	–	–		
	Stanby output		6.7	8.25	–	–	–	–	–	–	–	–
	Voltage	V	100	110	–	–	–	–	–	–	–	–
	Ampere	A	30.3×2	34.1×2	–	–	–	–	–	–	–	–
Pole		P	4									
Power Factor			3-phase 0.8 (lagging) / Single-phase 1.0									
Diesel Engine												
Model name			KUBOTA D1503-K3A		KUBOTA V2403-K3A		KUBOTA V3600-T-K3A		ISUZU BJ-4JJ1X		ISUZU BI-4HK1X	
System			3Cylinder, Swirl chamber		4Cylinder, Swirl chamber		4Cylinder, Swirl chamber, Turbo-Charged		4Cylinder, Direct-Injection, Turbo-Charged, Intercooled			
Total displacement		L	1.499		2.434		3.62		2.999		5.193	
Rated output		kW	11.5	13.7	19.1	23.7	35.0	42.5	51.6	61.0	96.3	113.6
Rated rotation speed		min-1	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil									
Fuel tank capacity		L	100		180		355		420		750	
Fuel consumption	50% Load	L/hr	1.8	2.2	3.0	3.8	4.9	6.1	5.7	7.1	9.9	12.8
	70% Load	L/hr	2.3	2.8	4.0	5.0	6.9	8.4	8.1	10.2	14.5	18.2
Engine Oil volume		L	6.5		9.5		13.2		15		20.5	
Coolant water volume		L	6.5		7.0		11		13.2		22.2	
Battery × unit			80D26R×1		80D26R×1		80D26R×1		95D31R×1		170F51×1	
Weight Dimension												
Length × Width × Hight		mm	1,390×650×1,160		1,540×700×1,250		1,850×860×1,560		2,080×1,000×1,490		2,530×1,150×1,760	
Dry(Operating) weight		kg	580 (675)		720 (890)		1,070 (1,390)		1,260 (1,630)		1,970 (2,630)	
Emission, Noise												
Sound Power level LwA		dB	81	84	86	90	84	88	86	89	91	
Sound pressure level (7m 4direction/no load)		dB (A)	55	58	59	63	57	60	59	62	60	63
Emission control			JPN Stage 3									

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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.

SDG-3B1
Standard engine generator

SDG-7B1
Oil fence engine generator

SDG-AS
Ultra-super silent engine generator

SDG-3B1
Standard engine generator

SDG-3B1
3B1 = Standard type.

SDG-7B1
Oil fence engine generator

SDG-7B1
7B1 = Oil fence mounted type.

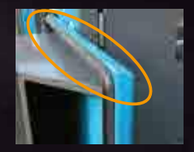
It is unnecessary the external fuel tank.
It is little possibility to leak the oil from the connection pipe between generator and external fuel tank.

Drainage disposing is drastically reduced
Drainage disposing is drastically reduced in the oil-fence.

Prevention of inhalation of rainwater
Increase the intake air volume by adopting the special structure of the intake port, it is reduced the negative pressure inside the machine body, and suppress the inhalation of rainwater.

Alarm indication
When the oil fume accumulates in the oil fence, the panel alarm lamp signals and informs you.

Prevention of inhalation of rainwater
We adopted a plug-in type seal used for automobiles and others.

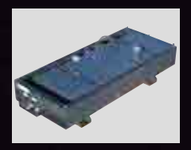


Easy loading and unloading
It is unnecessary to install the external oil-fence and external tank, connecting the fuel pipe.

Special designed body to prevent invasion of rainwater
Rainwater accumulates in the external oil fence when the rain falls, but the oil fence integrated type adopts a body structure that minimizes the soaking of rainwater into the body.

Easy maintenance
Removal of the oil fence part can be done easily by removing the screw of the stud bolt (4-8 pieces). Hanging hooks are equipped as standard on the fuel tank for maintenance.

Prevent water leakage and oil leakage structure
The oil fence part of SDG 13 - 60 adopted a bending type with less welding.
In addition, airtight welding is continuously applied to the welded part.



SDG-AS
Ultra-Super silent engine generator

SDG-AS
AS = Ultra super silent type.

We have succeeded to reduce the running noise level by mounting the low-noise engine, the big size muffler, the special exhaust duct structure for muffling of exhaust / exhaust air.
SDG25S ~ 60S, 150S, 25AS eliminates the gap thoroughly panel structure, and that the combined employing an intake duct, achieving a more quiet running. In addition, the special muffler support structure also reduced overall vibration.

• STANDARD

SDG13S-3B1

200 ↔ 400 Dual Voltage

SDG25S-3B1

200 ↔ 400 Dual Voltage

SDG45S-3B2

200 ↔ 400 Dual Voltage

Item \ Model			Standard Type							
			SDG13S-3B1		SDG25S-3B1		SDG45S-3B2		SDG45SE-3B2	
Generator										
Frequency		Hz	50	60	50	60	50	60	50	60
Power Supply			Dual Voltage						Single Voltage	
3phase 4wires 400V Class	Prime output	kVA	10.5	13	20	25	37	45	37	45
	Stanby output		11.55	14.3	22	27.5	37	45	37	45
	Voltage	V	400	440	400	440	400	440	400	440
	Ampere	A	15.15	17.05	28.9	32.8	53.4	59	53.4	59
3phase 4wires 200V Class	Prime output	kVA	10.5	13	20	25	37	45	–	–
	Stanby output		11.55	14.3	22	27.5	37	45	–	–
	Voltage	V	200	220	200	220	200	220	–	–
	Ampere	A	30.3	34.1	57.7	65.6	107	118	–	–
Pole		P	4							
Power Factor			3-phase 0.8 (lagging) / Single-phase 1.0							
Diesel Engine										
Model name			KUBOTA D1503-K3A		KUBOTA V2403-K3A		KUBOTA V3600-T-K3A		KUBOTA V3600-T-K3A	
System			3Cylinder, Swirl chamber		4Cylinder, Swirl chamber		4Cylinder, Swirl chamber, Turbo-Charged			
Total displacement		L	1.499		2.434		3.620		3.620	
Rated output		kW	11.5	13.7	19.1	23.7	35.0	42.5	35.0	42.5
Rated rotation speed		min-1	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil							
Fuel tank capacity		L	58		70		100		100	
Fuel consumption	50% Load	L/hr	1.9	2.4	3.0	3.8	4.9	6.1	4.9	6.1
	70% Load	L/hr	2.4	3.0	4.0	5.0	6.9	8.4	6.9	8.4
Engine Oil volume		L	6.5		9.5		13.2		13.2	
Coolant water volume		L	5.7		7.0		11		11	
Battery × unit			80D26R×1		80D26R×1		80D26R×1		80D26R×1	
Weight Dimension										
Length × Width × Hight		mm	1,480×650×950		1,550×700×980		1,870×860×1,220		1,870×860×1,220	
Dry(Operating) weight		kg	520 (580)		610 (680)		910 (1,020)		910 (1,020)	
Emission, Noise										
Sound Power level LwA		dB	80	83	86	90	86	88	86	88
Sound pressure level (7m 4direction/no load)		dB (A)	55	57	59	63	58	61	58	61
Emission control			JPN Stage 3							

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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

SDG60S-3B1

200 ↔ 400 Dual Voltage

SDG100S-3B1

200 ↔ 400 Dual Voltage

SDG125S-3B1

200 ↔ 400 Dual Voltage

SDG150S-3B1

200 ↔ 400 Dual Voltage

Item \ Model			Standard Type							
			SDG60S-3B1		SDG100S-3B1		SDG125S-3B1		SDG150S-3B1	
Generator										
Frequency		Hz	50	60	50	60	50	60	50	60
Power Supply			Dual Voltage							
3phase 4wires 400V Class	Prime output	kVA	50	60	80	100	100	125	125	150
	Stanby output		55	66	88	110	110	137.5	137.5	165
	Voltage	V	400	440	400	440	400	440	400	440
	Ampere	A	72.2	78.7	115	131	144	164	180	197
3phase 4wires 200V Class	Prime output	kVA	50	60	80	100	100	125	125	150
	Stanby output		55	66	88	110	110	137.5	137.5	165
	Voltage	V	200	220	200	220	200	220	200	220
	Ampere	A	144	157	231	262	289	328	361	394
Pole		P	4							
Power Factor			3-phase 0.8 (lagging) / Single-phase 1.0							
Diesel Engine										
Model name			ISUZU BJ-4JJ1X		ISUZU BI-4HK1X		ISUZU BI-4HK1X		ISUZU BH-6HK1X	
System			4Cylinder, Direct-Injection, Turbo-Charged, Intercooled						6Cylinder, Direct-Injection, Turbo-Charged, Intercooled	
Total displacement		L	2.999		5.193		5.193		7.79	
Rated output		kW	51.6	61.0	96.3	113.6	96.3	113.6	119	142
Rated rotation speed		min-1	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil							
Fuel tank capacity		L	125		220		250		250	
Fuel consumption	50% Load	L/hr	5.7	7.1	8.9	12.3	11.0	15.3	14.9	18.0
	70% Load	L/hr	8.1	10.2	13.2	17.8	16.0	21.8	22.2	24.8
Engine Oil volume		L	15		20.5		20.5		38	
Coolant water volume		L	11.5		21.5		21.5		28.3	
Battery × unit			95D31R×1		170F51×1		170F51×1		95D31R×2	
Weight Dimension										
Length × Width × Hight		mm	2,080×1,000×1,220		2,460×1,180×1,380		2,690×1,180×1,380		3,190×1,180×1,470	
Dry(Operating) weight		kg	1,110 (1,240)		1,700 (1,930)		1,820 (2,070)		2,210 (2,480)	
Emission, Noise										
Sound Power level LwA		dB	87	90	88	92	90	92	92	95
Sound pressure level (7m 4direction/no load)		dB (A)	58	62	60	64	61	64	63	66
Emission control			JPN Stage 3							

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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 MOUNTED

SDG100S-7B1

200 ↔ 400
Dual Voltage

SDG125S-7B1

200 ↔ 400
Dual Voltage

SDG150S-7B1

200 ↔ 400
Dual Voltage

Item		Model	SDG100S-7B1		SDG125S-7B1		SDG150S-7B1	
			Oil fence mounted Type					
Generator								
Frequency		Hz	50	60	50	60	50	60
Power Supply			Dual Voltage					
3phase 4wires 400V Class	Prime output	kVA	80	100	100	125	125	150
	Stanby output		88	110	110	137.5	137.5	165
	Voltage	V	400	440	400	440	400	440
	Ampere	A	115	131	144	164	180	197
3phase 4wires 200V Class	Prime output	kVA	80	100	100	125	125	150
	Stanby output		88	110	110	137.5	137.5	165
	Voltage	V	200	220	200	220	200	220
	Ampere	A	231	262	289	328	361	394
Pole		P	4					
Power Factor			3-phase 0.8 (lagging) / Single-phase 1.0					
Diesel Engine								
Model name			ISUZU BI-4HK1X		ISUZU BI-4HK1X		ISUZU BH-6HK1X	
System			4Cylinder, Direct-Injection, Turbo-Charged, Intercooled				6Cylinder, Direct-Injection, Turbo-Charged, Intercooled	
Total displacement		L	5.193		5.193		7.79	
Rated output		kW	96.3	113.6	96.3	114.4	119	142
Rated rotation speed		min-1	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil					
Fuel tank capacity		L	740		740		815	
Fuel consumption	50% Load	L/hr	8.9	12.3	11.0	15.3	14.9	18.0
	70% Load	L/hr	13.2	17.8	16.0	21.8	22.2	24.8
Engine Oil volume		L	20.5		20.5		38	
Coolant water volume		L	21.5		21.5		28.3	
Battery × unit			170F51×1		170F51×1		95D31R×2	
Weight Dimension								
Length × Width × Hight		mm	2,450×1,180×1,830		2,450×1,180×1,830		3,190×1,180×1,880	
Dry(Operating) weight		kg	2,095 (2,750)		2,145 (2,800)		2,725 (3,460)	
Emission, Noise								
Sound Power level LwA		dB	88	91	88	92	93	95
Sound pressure level (7m 4direction/no load)		dB (A)	60	64	60	64	64	68
Emission control			JPN Stage 3					

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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

SDG25AS-7B1
SDG45AS-7B1
SDG60AS-7B1

200 ↔ 400
Dual Voltage

SDG25AS-3B1
SDG45AS-3B1
SDG60AS-3B1

200 ↔ 400
Dual Voltage

Item		Model	SDG25AS-7B1		SDG45AS-7B1		SDG60AS-7B1		SDG25AS-3B1		SDG45AS-3B1		SDG60AS-3B1	
			Oil fence mounted & Ultra super silent Type						Ultra super silent type					
Generator														
Frequency		Hz	50	60	50	60	50	60	50	60	50	60	50	60
Power Supply			Dual Voltage											
3phase 4wires 400V Class	Prime output	kVA	20	25	37	45	50	60	20	25	37	45	50	60
	Stanby output		22	27.5	37	45	55	66	22	27.5	37	45	55	66
	Voltage	V	400	440	400	440	400	440	400	440	400	440	400	440
	Ampere	A	28.9	32.8	53.4	59	72.2	78.7	28.9	32.8	53.4	59	72.2	78.7
3phase 4wires 200V Class	Prime output	kVA	20	25	37	45	50	60	20	25	37	45	50	60
	Stanby output		22	27.5	37	45	55	66	22	27.5	37	45	55	66
	Voltage	V	200	220	200	220	200	220	200	220	200	220	200	220
	Ampere	A	57.7	65.6	107	118	144	157	57.7	65.6	107	118	144	157
Pole		P	4											
Power Factor			3-phase 0.8 (lagging) / Single-phase 1.0											
Diesel Engine														
Model name			KUBOTA V2403-K3A		KUBOTA V3800-DI-T-K3A		ISUZU BJ-4JJ1X		KUBOTA V2403-K3A		KUBOTA V3800-DI-T-K3A		ISUZU BJ-4JJ1X	
System			4Cylinder, Swirl chamber		4Cylinder, Direct-Injection, Turbo-Charged		4Cylinder, Direct-Injection, Turbo-Charged, Intercooled		4Cylinder, Swirl chamber		4Cylinder, Direct-Injection, Turbo-Charged		4Cylinder, Direct-Injection, Turbo-Charged, Intercooled	
Total displacement		L	2.434		3.769		2.999		2.434		3.769		2.999	
Rated output		kW	19.1	23.5	38.0	45.6	51.6	61.0	19.1	23.5	38.0	45.6	51.6	61.0
Rated rotation speed		min-1	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800	1,500	1,800
Use fuel			Diesel oil											
Fuel tank capacity		L	195		325		400		80		165		170	
Fuel consumption	50% Load	L/hr	3.0	3.8	4.7	5.9	5.7	7.1	3.0	3.8	4.7	5.9	5.7	7.1
	70% Load	L/hr	4.0	5.0	6.5	8.2	8.1	10.2	4.0	5.0	6.5	8.2	8.1	10.2
Engine Oil volume		L	9.5		13.2		15		9.5		13.2		15	
Coolant water volume		L	9		11		11.5		9		11		11.5	
Battery × unit			80D26R×1		80D26R×1		95D31R×1		80D26R×1		80D26R×1		95D31R×1	
Weight Dimension														
Length × Width × Hight		mm	1,570×800×1,380		1,995×950×1,670		2,080×1,080×1,640		1,570×800×1,090		1,995×950×1,300		2,080×1,080×1,300	
Dry(Operating) weight		kg	800 (980)		1,210 (1,500)		1,370 (1,730)		730 (810)		1,060 (1,215)		1,240 (1,400)	
Emission, Noise														
Sound Power level LwA		dB	79	82	79	82	82	85	80	83	79	82	82	86
Sound pressure level (7m 4direction/no load)		dB (A)	51	54	52	54	54	56	53	56	51	54	55	57
Emission control			JPN Stage 3											

※ Sound power level is measured at 60Hz, no load and rated speed of revolution.
※ 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.

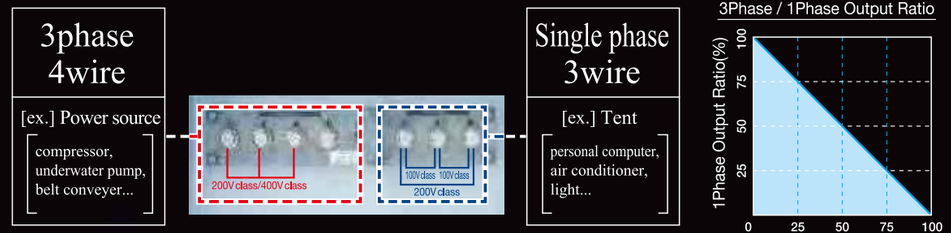
SDG-LA

3 and single phase capable multi output
leak-guard Able generator

SDG-LA
L = Prevent outflow of oil etc.as much as possible.
+
A = 3P3W / 1P3W Multi output.

3phase4wires /single phase3wires capable multi output / No need to switch

Three-phase 4-wire and single-phase 3 wire can be used at the same time. One unit can handle various power supplies.



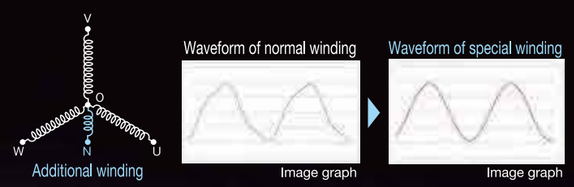
Easy checking of power generation status with ammeter

The total current of three phases and single phase can be confirmed with the familiar analog amp meter as before. Allowable current value is listed on the inscription next to ammeter, so it is obvious.

Ammeter Caution Plate

Excellent voltage waveform

Special winding is adopted as additional winding, and even in single phase 3 wire output, it provides high quality electricity with less distortion of waveform. (Patent has already been applied)



Adopted a leakage relay of "selective cutoff method"

Detect whether three-phase or single-phase electric leakage is occurring, and only tripping the circuit breaker with the electric leakage.

SDG-LAX

Large fuel tank mounted leak guard engine generator
3 and single phase capable multi output leak-guard Able generator

SDG-LAX
L = Prevent outflow of oil etc.as much as possible.
+
A = 3P3W / 1P3W Multi output.
+
X = Large fuel tank.

Large fuel tank mounted

Large fuel tank mounted as standard. It makes possible long time operation without external fuel tank.

• LEAK GUARD & DUAL OUTPUT

SDG45LA-5B2

3P3W & 1P3W 3P/1P Multi output
200 ↔ 400 Dual Voltage

SDG45LAX-5B2

3P3W & 1P3W 3P/1P Multi output
200 ↔ 400 Dual Voltage

Item		Model	Leak Guard & Dual OutputType							
			SDG25LA-5B1		SDG45LA-5B2		SDG60LA-5B1		SDG100LA-5B1	
Generator										
Frequency		Hz	50	60	50	60	50	60	50	60
Power Supply			Dual Voltage / Three ⇔ Single Phase Multi Output							
3phase 4wires 400V Class	Prime output	kVA	20	25	37	45	50	60	80	100
	Stanby output		22	27.5	37	45	55	66	88	110
	Voltage	V	400	440	400	440	400	440	400	440
	Ampere	A	28.9	32.8	53.4	59	72.2	78.7	115	131
3phase 4wires 200V Class	Prime output	kVA	20	25	37	45	50	60	80	100
	Stanby output		22	27.5	37	45	55	66	88	110
	Voltage	V	200	220	200	220	200	220	200	220
	Ampere	A	57.7	65.6	107	118	144	157	231	262
Single phase 3wires	Prime output	kVA	5.8(11.5)	7.2(14.4)	10.7(21.4)	13.0(26.0)	14.4(28.9)	17.3(34.6)	23.5(47.0)	29.0(58.0)
	Stanby output		6.4(12.7)	7.9(15.8)	10.7(21.4)	13.0(26.0)	15.8(31.8)	19.0(38.1)	25.8(51.7)	31.9(63.8)
200V Class/ 100V Class	Voltage	V	200/100	220/110	200/100	220/110	200/100	220/110	200/100	220/110
	Ampere	A	28.9/28.9×2(57.7/57.7×2)	32.8/32.8×2(65.6/65.6×2)	53.4/53.4×2(107/107×2)	59.0/59.0×2(118/118×2)	72.2/72.2×2(144/144×2)	78.7/78.7×2(157/157×2)	117.5/117.5×2(235/235×2)	132/132×2(264/264×2)
Diesel Engine										
Model name			KUBOTA V2403-K3A		KUBOTA V3600-T-K3A		ISUZU BJ-4JJ1X		ISUZU BI-4HK1X	
Weight Dimension										
Length × Width × Hight		mm	1,540×700×1,090		1,850×860×1,350		2,080×1,000×1,350		2,530×1,150×1,580	
Dry(Operating) weight		kg	695(770)		1,040(1,150)		1,250(1,390)		1,890(2,140)	
Emission, Noise										
Sound Power level LwA		dB	86	90	84	88	86	89	91	
Sound pressure level (7m 4direction/no load)		dB(A)	59	63	57	60	59	62	60	63
Emission contorol			JPN Stage 3							

Item		Model	Large fuel tank & Leak Guard & Dual OutputType							
			SDG25LAX-5B1		SDG45LAX-5B2		SDG60LAX-5B1		SDG100LAX-5B1	
Generator										
Frequency		Hz	50	60	50	60	50	60	50	60
Power Supply			Dual Voltage / Three ⇔ Single Phase Multi Output							
3phase 4wires 400V Class	Prime output	kVA	20	25	37	45	50	60	80	100
	Stanby output		22	27.5	37	45	55	66	88	110
	Voltage	V	400	440	400	440	400	440	400	440
	Ampere	A	28.9	32.8	53.4	59	72.2	78.7	115	131
3phase 4wires 200V Class	Prime output	kVA	20	25	37	45	50	60	80	100
	Stanby output		22	27.5	37	45	55	66	88	110
	Voltage	V	200	220	200	220	200	220	200	220
	Ampere	A	57.7	65.6	107	118	144	157	231	262
Single phase 3wires	Prime output	kVA	5.8(11.5)	7.2(14.4)	10.7(21.4)	13.0(26.0)	14.4(28.9)	17.3(34.6)	23.5(47.0)	29.0(58.0)
	Stanby output		6.4(12.7)	7.9(15.8)	10.7(21.4)	13.0(26.0)	15.8(31.8)	19.0(38.1)	25.8(51.7)	31.9(63.8)
200V Class/ 100V Class	Voltage	V	200/100	220/110	200/100	220/110	200/100	220/110	200/100	220/110
	Ampere	A	28.9/28.9×2(57.7/57.7×2)	32.8/32.8×2(65.6/65.6×2)	53.4/53.4×2(107/107×2)	59.0/59.0×2(118/118×2)	72.2/72.2×2(144/144×2)	78.7/78.7×2(157/157×2)	117.5/117.5×2(235/235×2)	132/132×2(264/264×2)
Diesel Engine										
Model name			KUBOTA V2403-K3A		KUBOTA V3600-T-K3A		ISUZU BJ-4JJ1X		ISUZU BI-4HK1X	
Weight Dimension										
Length × Width × Hight		mm	1,540×700×1,250		1,850×860×1,560		2,080×1,000×1,490		2,530×1,150×1,760	
Dry(Operating) weight		kg	740(910)		1,110(1,430)		1,310(1,680)		2,030(2,690)	
Emission, Noise										
Sound Power level LwA		dB	86	90	84	88	86	89	91	
Sound pressure level (7m 4direction/no load)		dB(A)	59	63	57	60	59	62	60	63
Emission contorol			JPN Stage 3							

※( ) It is the value for "3phase 4wires 200v class / Single 3wires 100v". ※Sound power level is measured at 60Hz, no load and rated speed of revolution.
※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.

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	
Frequency(Hz)	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					2	2	3	4	5	6	6	7	10	11	14	17	19	21
400A							3	3	3	3	5	5	6	7	9	12	13	14
500A								2	3	3	3	3	5	6	7	10	11	12

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 = 85% (three phase induction motor)

Power factor = 0.8 (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	
Frequency(Hz)		50	60	50	60	50	60	50	60	50	60
Generator(kVA)		10.5	13	20	25	37	45	50	60	80	100
Motor capacity	Direct start Simultaneously(kW)	4	4.5	6.5	7.5	12	14	17	19	26	32
	Direct start By turns(kW)	7.5	9	15.1	18.8	27.9	34	37.7	45.3	60.4	75.5
	λ-Δ start(open)(kW)	6	6.8	9.8	11.3	18	21	22.5	28.5	39	48
	λ-Δ start(closed)(kW)	7.5	9	15.1	18.8	27.9	34	37.7	45.3	60.4	75.5

Model		SDG125		SDG150		SDG220		SDG300		SDG400	
Frequency(Hz)		50	60	50	60	50	60	50	60	50	60
Generator(kVA)		100	125	125	150	200	220	270	300	350	400
Motor capacity	Direct start Simultaneously(kW)	35	43	43	51	68	76	91	102	130	145
	Direct start By turns(kW)	75.5	94.4	94.4	113	147	166	188	226	265	302
	λ-Δ start(open)(kW)	52.5	64.5	64.5	76.5	102	114	137	153	195	218
	λ-Δ start(closed)(kW)	75.5	94.4	94.4	113	147	166	188	226	265	302

∗ 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%.

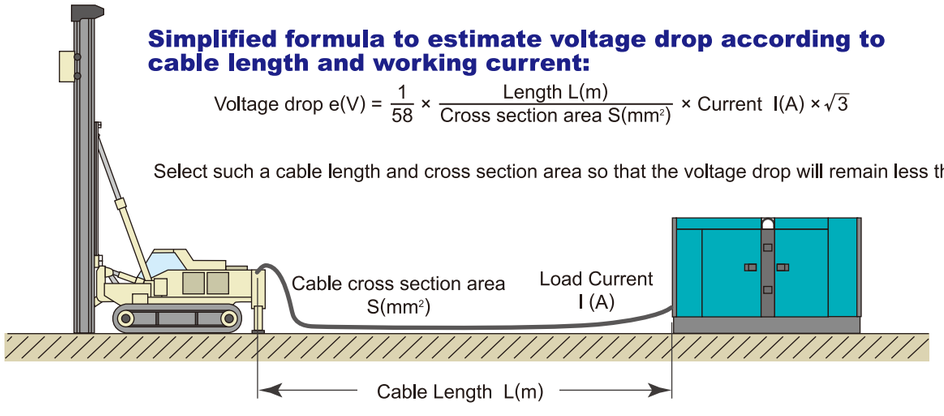
● When operating many motor loads (starting by turns one by one) and total capacity of the loads within the values in the above table, it can operate as many loads as expected. But the total capacity of the motors which are operated first shall be within the capacity at direct start instantaneous start.

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

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

$$\text{Voltage drop } e(V) = \frac{1}{58} \times \frac{\text{Length } L(m)}{\text{Cross section area } S(mm^2)} \times \text{Current } I(A) \times \sqrt{3}$$

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
50Hz	200V	30.3	57.7	107	144	231	289	361	563	779	1,010
	380V	16.0	30.4	56.2	76.0	122	152	190	296	410	532
	400V	15.2	28.9	53.4	72.2	115	144	180	281	390	505
60Hz	220V	34.1	65.6	118	157	262	328	394	577	787	1,050
	440V	17.1	32.8	59.0	78.7	131	164	197	289	394	525

List of Neutral Point (O terminal) Allowable Power

Model	SDG13		SDG25		SDG45		SDG60		SDG100	
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60
● 200/220V										
Voltage(V)	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
Output ratio	80∗4									
Allowable ampere Single phase(A)	30.3	34.1	57.7	65.6	107	118	144	157	231	262
Output ratio	100∗2									
● 400(380)/440V										
Voltage(V)	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
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
Output ratio	100∗2									

Model	SDG125		SDG150		SDG220		SDG300		SDG400	
Frequency(Hz)	50	60	50	60	50	60	50	60	50	60
● 200/220V										
Voltage(V)	115	127	115	127	115	127	115	127	115	127
Allowable ampere 3 phase average(A) ∗1	231	262	289	315	462	462	390	394	505	525
Output ratio	80∗4						50∗3			
Allowable ampere Single phase(A)	289	328	361	394	577	577	390	394	505	525
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
Allowable ampere 3 phase average(A) ∗1	115 (122)	131	144 (151)	158	231 (243)	231	312 (328)	315	404 (426)	420
Output ratio	80∗4									
Allowable ampere Single phase(A)	144 (152)	164	180 (189)	197	289 (304)	289	390 (410)	394	505 (532)	525
Output ratio	100∗2									

∗1 When you use single phase with 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

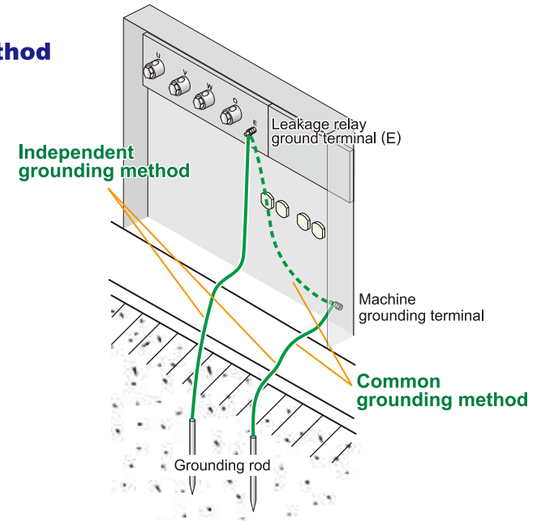
<Procedure>

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.



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.

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

•Specifications of ATS panel

	For SDG13/25	For SDG45/60	For SDG100/125/150	For SDG220/300	For SDG400
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

Memo