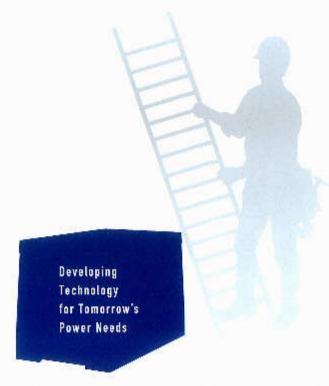
# Building the Future Diesel Engine-Driven Generators and Welders for the European Market

Developing Technology for Tomorrow's **Power Needs** 





# Denyo: Making a Difference on Worksites Worldwide

We use electricity every day, taking it for granted. However, there are a surprising number of situations in which electricity supplied by the power company cannot be used or when there is not enough electricity, such as on construction sites, during disasters, and in developing countries. At such times, we supply as much electricity as is needed, whenever and wherever. And we meet the expectations of customers around the world. Taking this as its mission, Denyo has been working to develop better products ever since its foundation.





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# **Denyo's Strengths**

Market share in Japan for generators



Market share in Japan for welders 55%

Market share in Japan for

#### Boasting a high share of the Japanese market, Denyo is a leading company in outdoor power sources

Since its establishment in 1948, Denyo has firmly created its own technology, including the release of high-performance, engine-driven generators featuring excellent energy savings and the commercialization of Japan's first small, lightweight engine-driven welders, and has launched a succession of products specialized for use in outdoor locations without sources of power. As a result, today Denyo has grown into a leading company in outdoor power sources, with a market share of 65% in Japan for engine-driven generators, our main product, and 55% of the market for engine-driven welders.



cutting according to the design



coating for improving product corrusion



Generator assembly





Performance testing of products in the

#### Quality products that come from thorough start-to-finish production from design to product finishing

One reason we can create such high-quality products is our thoroughly integrated production of everything besides the engines, from design and manufacture of machine parts to assembly and finishing. Integrated production also enables us to provide products that truly meet customers' individual needs by rapidly manufacturing made-to-order products.

#### We carefully manufacture generator coils from a single wire.



Winding of copper wire to the rotor by automatic winding machine



Varnishing of rotors for protection against earthquakes, corrosion

# Our products are used in 130 countries worldwide.

Featuring excellent reliability and durability, high sound insulation, and supplying quality electricity, Denyo's generators are used not only as power sources on construction sites but also as precious sources of power for daily life in developing countries and sparsely populated deserts, isolated islands, and mountainous areas not reached by electricity. They are also used as power sources for events and as backup power sources in times of disaster and power outages. Thus far, our generators have helped people throughout the world, having been selected in important situations, for example, by customers as the power source for Singapore's Independence Day ceremonies and for reconstruction of the areas affected by the major earthquake in Haiti.









04



#### We develop environmentally friendly products.

In recent years environmental regulations have become increasingly strict, as countries around the world have become concerned about air pollution and the effects on human health caused by the gases emitted from automobiles and construction machinery. Denyo was quick to work on improving environmental performance and has assembled a line of environmentally friendly engine-driven generators, including DCA-45ESEK, 45USEK, and 125USEI, which have cleared Stage IIIA (the strictest exhaust gas regulation in Europe), and the DCA-US Series (Ultra Silent Series), in which we achieved a low noise level on a par with a quiet office.

# **Engine-Driven Generators**

4-Pole Generators | Soundproof Type |

#### DCA-25ESEK



#### DCA-45ESEK DCA-125ESEI





2-Pole Generators | Soundproof Type |

#### DA-6000SSEK



4-Pole Generators | Ultra Soundproof Type |

#### DCA-45USEK



#### DCA-125USEI



#### 2-POLETYPE Soundproof

MODEL		DA-600055EK	TUG-18ESEK	
AC Generator				
Frequency	llz.	50	50	
Output Rating	Standby	5.5	15	
kVA	Continuous	6.1	16.5	
No. of Poles		2	2	
No. of Phases	The second second	1	3	
Rated Voltage	V	220	380/400/415	
Power Factor (La	gging)	1	0.8	
Voltage Regulation %		Within 6.0	Within 1,5	
Excitation		Brushless retains exister, Brushless recating content in this Ale		
Insulation		Class F		

Engine (4-cycle, water-cooled diesel engine)

Model		Kubota E2B	Kubota D1005-B	
Туре		Swirt chamber type		
Rated Output	kW	6.5	16.5	
Rated Speed	min*	3000	3000	
No. of Cylinders		2	3	
Bore x Strake	mm	67 × 68	76 × 73.6	
Displacement	- 1	0.479	1.001	
Fuel		ASTM No. 2 diesel fuel or equivalent		
Fuel Tank Capacity	L	25	42	
Fuel Consumption	L/h	1.8	3.8	
Lube Oil Capacity	- 4	2.5	5.1	
Coplant Capacity	1	2.75	4.7	
Battery x Quantity		12V-45Ah × 1	12V-45Ah × 1	

Dimensions, Weight and Sound Power Level

Dimensions	Length mm	1140	1400	
	Width mm	550	720	
	Height mm	795	770	
Dry Weight	kg	240	437	
Sound Power Le	evel LWAdB	87	92	

#### 4-POLE TYPE Soundpreof

MODEL		DCA-15ESEK	DCA-25E5EK	DCA-35ESEK	DCA-45E5EK	DCA-70E5E
AC Generator						
Frequency	lle	50	50	50	50	50
Output Rating	Standby	12.5	20	30	37	60
kVA	Continuous	13.8	22	31.5	40.7	66
No. of Poles		4	4	4	4	- 4
No. of Phases		3	3.	3	3	3
Rated Voltage	V	380/400/415	380/400/415	380/400/415	380/400/415	380/400/415
Power Factor (I	agging)	0.8	8.0	0.8	0.8	0.8
Voltage Regula	tion %	on % Within + 0.5				
Excitation	200	Brushless rotating exciter (with AVR)				
Insulation		1	200000000000000000000000000000000000000	Class F	Date Hereston	

Engine (4-cycle, water-cooled diesel engine)

Model		Kubota 01/03-E28	Kubata V2203-E28	Kubota V3300-E2B	Kubota V3800	Isuzu 4JJ1X
Туре		S	wirl chamber ty:	Direct rijection, purbo- charged, cooled EG)	Direct injection, turbodraryed type	
Rated Output	kW	12.4	18.4	28.3	38	52.9
Rated Speed	min <sup>-1</sup>	1500	1500	1500	1500	1500
No. of Cylinders		- 3	4	4	4	- 21
Bore x Stroke	mm	87 × 92.4	87 × 92.4	98 × 110	100 × 120	95.4 × 104.9
Displacement	L	1.647	2.197	3.318	3.769	2.999
Fuel			ASTM No.	2 diesel fuel or	equivalent	111111111111111111111111111111111111111
Fuel Tank Capacity	- 1	62	62	82	100	150
Fuel Consumption	L/h	2.8	3.9	5.9	6.99	9.7
Lube Oil Capacity	- 1	5.6	7.6	13.2	13.2	17
Coolant Capacity	- 1	6.4	7.9	10.5	10.9	12
Battery x Quantity		12V-65Ah x 1	12V-65Ah x 1	12V-70Ah x 1	12V-70Ah x 1	12V-110Ah x 1

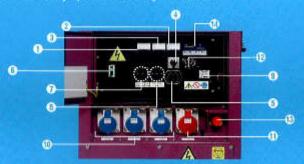
Dimensions, Weight and Sound Power Level

Dimensions I	Length mm	1390	1540	1900	1900	2400
	Width mm	650	650	860	880	1000
	Height mm	1050	1050	1130	1400	1550
Dry Weight	kg	565	540	950	1100	1530
Sound Power	Level LWAdB	88	85	89	88	93

 Continuous output rating applies to operation under standard conditions as per JIS 88014.
 Standby output rating applies to intermittent or emergency operation for approximately 1 hour as per JIS 80014.
 Fuel consumption is based on operation at 75% load.
 Sound level reflects 75% rated load and is calculated by averaging the measurements at four points. each 4 meters from the source. Colors of products would be different from printed ones of catalogues. Specifications given herein are subject to change without notice.

#### **Control Panel with Outstanding User-Friendliness**

Denyo's generators feature a functional panel layout that can be easily operated even by first-timers.



OFREQUENCY METER QAC AMMETER GAC VOLTMETER GAMMETER CHANGE OVER SWITCH QVOLTAGE REGULATOR OCCUPIT BREAKER (For 1-Phase Recoptacle) (CORCUIT BREAKER (For 3-Phase Recoptacle) (CORCUIT BREAKER (For 3-Phase Recoptacle) (CORCUIT BREAKER (For 3-Phase Receptacle) (CORTH LEAKAGE RELAY (D1-PHASE RECEPTACLE (Dx-PHASE RECEPTACLE) (BSTARTER SWITCH (DEMERGENCY STOP BUTTON (DENGINE MONITOR)

#### Consideration for the Global Environment

- Compliant with the EU's exhaust gas regulations (Stage II or Stage III).
- Comes with an environmental base to catch spilled fuel and oil and stop it from leaking out of the generator (accumulated fuel and oil can be discharged through a drain with a single touch).
- The fill opening features a structure that prevents fuel from leaking outside the generator even if it is spilled when fueling



#### **Excellent Maintainability**

Routine maintenance is easy with Denyo's generators.
Engine oil, the battery, and coolant are all checked at one location. When conducting repairs or maintenance, the fuel tank comes in and out easily for cleaning by removing the front cover.
The radiator can also be cleaned easily.

#### **Consideration for Safety**

- Breakers compliant with CE marking.
- Warning lamp indicates on the engine monitor when something is wrong or automatically shuts the engine down.
- Emergency stop button.



#### Quiet Operation Noise comparison (7mmo load) Unit! (BIA)

Denyo's generators run quietly thanks to the Company's original soundproofing technology. The Ultra Soundproof Type in particular features a low-noise engine, low-noise fan, the addition of a silencer, and special structures such as changes to the hood shape, which create a low noise level similar to that of a quiet office.

#### 4-POLE TYPE Soundpront

Dry Weight

MODEL .		DCA-125ESE	DCA 180ESEL	DCA 220ESEI	DCA 400ESEI	
AC Generator						
Frequency	Hz	50	50	50	50	
Output Rating	Standby	100	150	200	350	
kVA	Continuous	110	165	220	385	
No. of Poles			4	4	- 4	
No. of Phases	7.10	3	3	3	3	
Rated Voltage	ν	380/400/415	380/400/415	380/400/415	380/400/415	
Power Factor (La	gging)	0.8	0.8	0.8	0.8	
Voltage Regulation %		Within ± 0.5 Within ± 1:				
Excitation			Brushless rotating exciter (with AVR)			
Insulation			Cla	ss F		

1515-616						
Engine (4-cycle,	water-cooled di-	esel engine)				
Model		Isuzu 4HK1	Isuzu 6HK1	Isuzu 6UZ1	Isuzu 6WG1	
Турс			rjection, rged type	Direct injection with aft	i, turbocharged er cooler	
Rated Output	kW	91.6	133	203	309	
Rated Speed	min-1	1500	1500	1500	1500	
No. of Cylinde	rs	4	6	6	6	
Bore x Stroke	mm	115 x 125	115 x 125	120 × 145	147 x 154	
Displacement I.		5.193	7.79	9.839	15.681	
Fuel		ASTM No. 2 diese Tuel or equivalent				
Fuel Tank Capa	ecity L	250	300	460	490	
<b>Fuel Consumpt</b>	tion L/h	17.1	25.9	33.1	57	
Lube Oil Capac	ity L	23	40.5	41	55	
Coolant Capac	ity L	20.2	27.8	54	50	
Battery × Quantity		12V-150Ah x 1	12V-100Ah × 2	12V-150Ah x 2	12V-200Ah x 3	
Olmensions, We	eight and Sound	Power Level				
Dimensions	Length mm	3100	3500	3790	4620	
	Width mm	1140	1200	1450	1450	
	Height mm	1650	1700	2000	2200	

2760

#### 4-POLE TYPE titera Soundproof

MODEL		DCA 25USEL	DCA 45USEK	DCA-125USE	
AC Generator					
Frequency	Hz	50	50	50	
Output Rating	Standby	20	37	100	
kVA.	Continuous	22	40.7	110.	
No. of Poles		A	4	1	
No. of Phases	100	3	3	3	
Rated Voltage	٧	380/400/415	380/400/415	380/400/415	
Power Factor (La	agging)	0.8	0.8	0.8	
Voltage Regulation %		Within ± 0.5			
Excitation		Brushless rotating exciter (with AVR)			
Insulation		Class F			

Engine (4-cycle, water-cooled diesel engine)

Model	Isuzu BV-4LE2	Kubota V3800	Isuzu 4HK1		
Туря	Direct injection type	Oriect injection, turbo- charged, cooked \$55.	Direct injection, turbo- charged with other cooler		
Rated Output k)	W 19.1	38	96.3		
Rated Speed min	1500	1500	1500		
No. of Cylinders	4.	4	4		
Bone x Stroke m	n 85 x 96	100 x 120	115 × 125		
Displacement	2.179	3.769	5.193		
Fuel	ASTM N	ASTM No. 2 diesel fuel or equivalent			
Fuel Tank Capacity	E 92	170	250		
Fuel Consumption L	3.5	6.74	16.7		
Lube Oil Capacity	L 8.5	13.2	20.5		
Coolant Capacity	L 5.4	9,4	22		
Battery × Quantity	12V-65Ah × 1	12V-70Ah × 1	12V-150Ah x 1		

Dimensions, Weight and Sound Power Level

Dimensions	Length mm	1770	2010	3050
	Width mm	790	950	1240
	Height mm	1170	1470	1800
Dry Weight	kg	785	1200	2460
Secured Decrees 1	Ble AAACL Tenues	80	90	97

◆Continuous output rating applies to operation under standard conditions as per JIS 85014. ◆Standby output rating applies to intermittent or emergency operation for approximately 1 hour as per JIS 85014. ◆Fuel consumption is based on operation at 7.5% load. ◆Sound level reflects 7.5% rated load and is calculated by averaging the measurements at four points, each 4 meters from the source. ◆Colors of products would be different from printed ones of catalogues. ◆Specifications given herein are subject to change without notice.

# **Engine-Driven Welders**

Praised for their stable welding performance with little reduction in voltage as a result of their durability and drooping characteristic, Denyo's engine-driven welders are found in use in countries throughout the world. They can even be used as high-performance engine-driven generators. Equipped with idle-control systems that reduce fuel consumption, Denyo's welders provide excellent economic efficiency.

#### DAW-300SSEK



#### DLW-300ESEW



#### **Exceptional Welding Performance**

- A built-in high-performance generator ensures a stable supply of welding current. This enables outstanding welding performance with an extremely long arc and little arc interruption with the welding electrode.
- The Arc Force Regulator allows users to adjust the short cut current according to the application (excluding the DAW-300SSEK).

Soft": Enables smooth vertical and pipe wolding.

# STANDARD (SOFT MAD) (ASSET MAD)

#### **Economic Efficiency**

Fuel consumption can be reduced with e-mode, which controls engine revolutions, making them more efficient

#### DAW-300SSEK

DAW 30055EK is a non-step automatic control with a microcomputer that assures optimum engine revolutions under any load conditions, with slow-down (low-speed) revolutions.

ANTI-LATING DO N. CHOSE CHANTO " FOR TICK

#### DLW-300ESEW, 400ESEW

When welding work starts or the equipped AC Generator starts to operate, the welder works at high-speed mode, and when the unloaded condition of current is applied, the machine



#### **Environmentally Friendly**

Equipped with environmentally friendly clean engines,
 Denyo's welders are compliant with the EU's exhaust gas regulations (Stage II).

#### Safety

- Equipped with an emergency stop button
- Equipped with an earth leakage relay
- A warning lamp notifies users when an abnormality has occurred (drop in oil pressure, rise in water temperature, poor battery charge).





#### Maintainability

 Denyo's welders provide "one-side maintenance" in which daily checks and maintenance can be performed just by opening a single door.



MODEL		DAW-300555K	DLW-300ESEW		DLW-400ESEW	
		DAM-20022ER	Full range Operation	e-mode Operation	Full-range Operation	e-mode Operation
C Welding Output						
Rated Output	kW	8.74	7.9	4.22	10.96	7.1
Rated Current	Single A.	280	260.	160	330	240
	Dual A		130	80	165	120
Rated Voltage	Single V	31.2	30.4	26.4	33.2	23.6
	Dual V	-	25.2	23.2	26.6	24.8
Curernt Range	Single A	30 ~ 300 (2200 ~ 3000min*)	60 ~ 280	50 ··· 160	60 ~ 390	60 ~ 240
	Dual A		20 ~ 140	30 ~ 50	30 ~ 190	30 120
Rated Speed	Single min1	3000	3000	2200	3000	2200
	Dual min!	100	3000	2200	3000	2200
Rated Duty Cycle	Single %	58	50	100	63	100
2000	Dual %	200	50	100	60	100
Applicable Electrode	Single mm	2.0 ~ 5.0	20~60	2.0 4.0	Z.0 8.0	2.0 ~ 5.0
1000	Dual mm		2.0 ~- 3.2	2.0 ~- 2.6	2.0 ~ 4.0	2.0~3.2
		-		793 - 1396	1 222	7.50
-Phase AC Power Output		-		999	1	4
Rated Output	kVA	×	9.9		13.2	
ated Voltage V		1.5	380			
ated Current A		12	15 20		0	
ated Speed min <sup>-1</sup>			3000			
requency Hz		78	50			
ower Factor			0.8			
Rating				Cont	tinuous	
I-Phase AC Power Output						
Rated Output kVA		3	3.3 × 2			
Rated Voltage V		220	220			
Rated Current	A	13.6	15 × 2			
Frequency Hz		50				
Power Factor						
Rating		Cantinuous				
Per Col Victor away or a restrict to the control	ed diseat avaluat			700000000		
ingine (4-cycle, water-coole	a alesel engine)			bosc	T 0.000	errore.
MODEL		Kubota D/22	Kuhot		Kubota	D1005
Type		1275	Vertical, 4-cycle, water-realed diesel engine, swirl chamber type			
Rated Output			14.7		1	
Rated Speed	min. <sup>1</sup>			3000	10	
No.of Cylinders Bore x Strol	ke mm	3-67 × 68	3.72)		3.76 :	
Displacement	L	0.719	8.0		1.0	01
Fuel				/I No. 2 diesel fuel or equiv		
Fuel Tank Capacity	L	19	3		4	
Fuel Consumption		2.1	2.33	1.46	3.24	2.18
Lube Oil Capacity	L.	3.76	5.		5	10.00
Coolant Capacity L		3,8				
Battery × Quantity				12V-45Ah × 1 (55824L)		
Dimensions, Weight and So	und Power Level					
Dimensions Length × Width × Height mm		1270 x 680 x 740	1410 × 680 × 770		1520 x 720 x 770	
Contentions   Design A Villar & Hought   Hill		1010 V 2005 O 170	1717 5 500 5 117		100000000000000000000000000000000000000	

•Rated welding load at rated duty cycle e-mode data is calculated by rated duty cycle at full-range operation. •Sound level reflects 75% rated load and is calculated by averaging the measurements at four points, each 4 meters from the source.

415

89

310

90

LWAd8

### **Global Network**

#### Denyo Group



Denyo Europe B.V. Molensteyn 48, 3454 PT De Meern, The Netherlands



Denyo Vietnam Co., Ltd.
Plot A3,Thang Long Industrial Park II,
Yen My District, Hung Yen province, Vietnam

Denyo United Machinery Pte. Ltd. Denyo Asia Pte. Ltd. 27 Pioneer Sector 1, Jurong, Singapore 628433



#### Corporate Information

#### Company Outline



Denyo Head Office, Tokyo Japan

Company Name Denyo Co., Ltd.

Representative Shigeru Koga, President
Established July 2, 1948

Head Office 2-8-5, Nihonbashi-horidomecho, Chuo-kii, Tokyo 103-8566, Japan Paid-in Capital X1.954 million

Paid-in Capital ¥1,954 million Fiscal Year-End March 31

Plants Fukui and Shiga, Japan Number of Issued Shares 25,359 thousand

Business Lines Manufacture and sales of engine-driven generators, welders,

air compressors and other special machinery



Denyo America Corporation Denyo Manufacturing Corporation 1450 Minor Road, Danville, Kentucky, 40422 U.S.A.



P.T. Dein Prima Generator JL. Raya Bekasi Km. 28, Medan Satria, Bekasi 17132 Jawa Barat, Indonesia

#### **Brief History**

July 1948 Established Japan Power Welding Machine Co., Ltd.

March 1959 Developed and manufactured high-speed engine-driven welders

December 1961 Began to manufacture engine-driven generators

February 1966 Developed sound-proof generators and began production of sound-proof engine-driven generators and welders

July 1966 Changed the corporate name to Denyo Co., Ltd.
July 1970 Completed construction on the Shiga Plant
March 1976 Established a joint venture, P.T. Denyo Indonesia
April 1976 Completed construction on the Fukui Plant

February 1983 Denyo was listed on the Second Section of the Tokyo Stock Exchange

December 1992 Established a U.S. subsidiary, Denyo America Corporation

August 1995 Established a joint venture, Denyo Manufacturing Corporation in the United States

December 1997 Received ISO 9001 certification for the Fukui Plant

March 2000 Listed on the First Section of the Tokyo Stock Exchange

July 2000 Established a Singapore subsidiary, Denyo Asia Pte. Ltd.

December 2006 Moved its head office to Nihonbashi-horidomecho in Tokyo

October 2007 Established Denyo Europe B.V. in the Netherlands

July 2009 Merged with Denyo Techno Services Co., Ltd. and Denyo Trading Co., Ltd.

May 2010 Established a Vietnamese subsidiary, Denyo Vietnam Co., Ltd.



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http://www.denyo.co.jp



