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SPECIFICATIONS

Soundproof Diesel Engine-Driven
DC Welder / AC Generator

MODEL DLW-300ESA

[60Hz, 120V/240V]

 **Denyo Co., Ltd.**

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1. APPLICATION

- 1.1 This specification covers the water-cooled, diesel engine-driven DC Welder / AC Generator model DLW-300ESA (hereafter referred to as welding set).
- 1.2 This welding set shall be designed, manufactured and tested in accordance with the latest standards of JIS.

JIS Japanese Industrial Standard
 Other matters which are not specifically mentioned in the above standards shall be subject to Denyo Co., Ltd.'s production regulations.

2. GENERAL

2.1 Materials and Workmanship

The materials used in the manufacture of this equipment shall be of the high quality, and shall be free from defects and imperfections.

All materials and apparatus not manufactured by Denyo Co., Ltd. shall be the products of well-known manufacturers. The workmanship shall be of the high grade and in accordance with the most efficient, up-to-date procedures.

2.2 Change

Minor changes after the final design may be made by Denyo Co., Ltd. without prior notice to the Purchaser. In case of major changes or additional equipment which may result in an increase or decrease of equipment's cost, such modifications shall be made in writing and agreed to by both parties prior to production and shall constitute an amendment to these specifications.

2.3 Tests and Inspections

Routine tests and inspections shall be final in our factory.

If any tests and inspections beyond the scope of Denyo's standard commercial procedures are required by the Purchaser, charges for such inspections or tests shall be added to our estimate. Conditions of any such tests and inspections shall be mutually agreed upon between both parties.

2.4 Ambient Conditions

This generating set should meet the following conditions:

- | | |
|---------------------------|-----------------------------------|
| (1) Ambient temperature | : -5° C or higher, 40° C or lower |
| (2) Altitude | : up to 500m above sea level |
| (3) Relative humidity | : 85% or lower |
| (4) Place of installation | : outdoor |

3. STRUCTURE

The welding set possesses a solid structure, and is comprised of a water-cooled diesel engine and a generator, which are directly coupled on a common base.

A coupling housing is employed to connect the generator to the engine. Firm coupling of the engine and generator is ensured by tight connection of the housing exterior. The rotating section of the generator is directly coupled to the flywheel of the engine.

The standard generator is of the brushless type.

A heavy gauge steel bonnet and side door completely cover the engine, generator and accessories, protecting the unit from effects of weather or possible handling damages at the construction site.

A lifting hook is attached to the balance point of the bonnet top.

4. SPECIFICATIONS AND PERFORMANCE

4.1 Generator

Generator Type : Brushless revolving field type

(1) CV Welding Output (for Wire)

		UNDER e Mode Operation
Rated Output	: 7.84 kW	3.2 kW
Rated Current	: 280 A	160 A
Rated Voltage	: 28.0 V	20.0 V
Voltage Range	: 14~32 V	14~20 V
Rated Speed	: 3600 min ⁻¹	2400 min ⁻¹
Rated Duty Cycle	: 100 %	100 %

(2) CC Welding Output (for Stick)

		UNDER e Mode Operation
Rated Output	: 8.74 kW	4.22 kW
Rated Current	: 280 A	160 A
Rated Voltage	: 31.2 V	26.4 V
Current Range	: 30~300 A	30~160 A
Rated Speed	: 3600 min ⁻¹	2400 min ⁻¹
Rated Duty Cycle	: 100 %	100 %

(3) Single-Phase AC Power Output

Max. Output	: 10.5 kVA
Rated Output	: 9.6 kVA
Rated Voltage	: 120 V / 240 V
Max. Current	: 43.8 × 2 A / 43.8 A
Rated Current	: 40.0 × 2 A / 40.0 A
Rated Speed	: 3600 min ⁻¹
Frequency	: 60 Hz
Power Factor	: 1.0
Rating	: Continuous

The machine permits simultaneous use of DC welding power and AC power.

4.2 Diesel Engine

Maker and Model	: KUBOTA D722
Type	: Vertical, water-cooled, 4-cycle diesel engine (swirl chamber type)
Emission Regulation	: EPA Tier4
Rated Output	: 14.0 kW (18.8HP) / 3600 min ⁻¹
No. of Cylinders	: 3
Bore × Stroke	: 67 mm × 68 mm
Total Displacement	: 0.719 L
Governor	: Mechanical all speed governor
Cooling System	: Water cooling by radiator with fan
Lubricating System	: Gear pump
Starting Motor	: 12 V - 1.0 kW
Charging Generator	: 12 V - 150 W
Battery	: 12 V - 45 Ah × 1 (55B24L)
Fuel	: Diesel fuel(Low sulfur fuel or Ultra low sulfur fuel only)
Lubricating Oil	: API service class, CF,CF-4,CG-4,CH-4 or CI-4

-Note-		Generator rated output is in accordance with JIS standard ambient conditions.	
		JIS standard ambient conditions	
(A)	Ambient temperature	25 °C	
(B)	Atmospheric pressure	100 kPa	
(C)	Relative humidity	31 %	

4.3 Voltage Regulation

The voltage regulation from no load to rated load under a rated power factor shall be within $\pm 1.5 \%$ of rated voltage when using 240V, and within $\pm 5 \%$ of rated voltage when using 120V.

4.4 Limits of Temperature

Limits of temperature rise of the generator shall be in accordance with relevant Japanese standards, based on ambient temperature not exceeding 40°C, and shall not exceed the following:

Armature windings	85°C	(Insulation class F)
Field winding	85°C	(Insulation class F)

-NOTE- Method of measuring temperatures rise is thermometer method.

4.5 Dielectric Strength Test

The strength of the windings of the generator and control box shall meet the specifications of the high voltage test according to Japanese standards:

Armature windings - Grounding	AC 1500V	(one minute)
Field winding - Grounding	AC 1500V	(one minute)
Electrical parts - Grounding	AC 1500V	(one minute)

-NOTE- The dielectric strength test of semi-conductive parts such as diode will be carried out without disconnecting the terminals.

4.6 Sound Level

The average rated load sound is limited within 68 dB (A) at a distance of 7 m .

4.7 Dimensions and Weight

Length	:	1290 mm
Width	:	680 mm
Height	:	840 mm
Dry Weight	:	385 kg
Total Weight	:	427 kg (all fluids including fuel)

5. INSTRUMENT PANEL AND SYSTEM

5.1 Control Panel for Welding

DC Welding Output Terminal (+, -)	1	sets.
Current/Voltage Regulator	1	pc.
Arc Force Regulator	1	pc.
Welding Mode Selector Switch (CC/CV)	1	pc.
e Mode Selector Switch	1	pc.
Digital Panel (DC Voltmeter, DC Ammeter)	1	sets.

5.2 Control Panel for AC power

AC Circuit Breaker (Main and for CS6369)	1	pc.
AC Output Receptacle (CS6369 120/240V, 50A)	1	pc.
AC Circuit Protector (for L6-30R)	1	pc.
AC Output Receptacle (L6-30R 240V, 30A)	1	pc.
AC Circuit Protector (for L5-30R)	1	pc.
AC Output Receptacle (L5-30R 120V, 30A)	1	pc.
AC Circuit Protector (for 5-20R)	1	pc.
AC Output Receptacle, duplex (5-20R 120V, 20A GFCI)	1	set
Ground Terminal (for GFCI)	1	pc.
AC Voltmeter	1	pc.

5.3 Control Panel for Engine

Starter Switch	1	pc.
Idle Control Switch	1	pc.
Hour Meter	1	pc.
Warning Lamp Unit (Oil, Water, Charge, Preheat)	1	set.

6. SAFETY CONTROLS

The welding set shall be equipped with automatic safety controls which will shut down the engine in the event of any abnormal condition such as :

	Engine shut down	Circuit breaker well trip	Warning lamp	DC welding control unit shut down
Low lubricating oil pressure	○	—	○	—
High jacket water temp.	○	—	○	—
Insufficient charge	○	—	○	—
Over current of Auxiliary AC power	—	○	—	—
Welding overload	—	—	○	○

Mark ○ ; Operate

Mark — ; Not operate

7. CAPACITY

Cooling water capacity : 3.3 L (Reserve Tank included)
 Lubricating oil capacity : 3.8 L
 Fuel tank capacity : 36 L

8. ATTACHMENT

Instruction Manual	1	vol.
Parts List	1	vol.
Instruction Manual (Engine)	1	vol.
Spare Fuse (65 A)	1	pc.

9. COATING

The welding set and the engine shall be the manufacturer's standard colors.
 (Munsell No. 4.8Y9.2/0.5 , No. N-1)