



INDUSTRIAL EQUIPMENTS PVT. LTD.

CWG40SD

Sound Proof Diesel Powered Welding Generator

400 A DC stick welding | 5.0 kVA auxiliary power | Brushless alternator | Super silent



INSTRUCTION MANUAL

Please read this manual carefully before installing and using the machine.

Cruxweld Industrial Equipments Pvt. Ltd.

5, Sector 29, Faridabad – 121008 (Haryana), India

Phone: +91 8800 882 983 | +91 (129) 489 2868 Email: sales@cruxweld.com | Service: support@cruxweld.com
www.cruxweld.com

Contents

1	Safety precautions	2
2	General description	3
3	Technical specifications	4
4	Machine overview	5
5	Installation and preparation	6
6	Starting and stopping the engine	7
7	Welding	8
8	Auxiliary power	9
9	Maintenance	10
10	Troubleshooting	11
11	Storage and transport	12
12	Warranty	13

This manual contains the safety, installation, operation and maintenance instructions for the Cruxweld CWG40SD diesel welding generator.

Read it carefully before using the machine and keep it with the machine. The diesel engine is also covered by the engine manufacturer's operation and maintenance manual supplied with the machine – follow it for all engine service work.

Cruxweld provides a warranty for this machine from the date of purchase, as stated in Chapter 12. The contents of this manual may be revised without prior notice.

Signs used in this manual

▲ DANGER	A serious hazard which may cause death, serious injury or major damage if it is not observed.
▲ WARNING	A hazard which may cause injury or damage to property if it is not observed.
▲ ATTENTION	A risk which may cause a fault in, or damage to, the machine if it is not observed.
Note	Useful information for correct operation.

1 Safety precautions

1.1 Exhaust gas

▲ DANGER

Engine exhaust contains carbon monoxide, a colourless, odourless and deadly gas. Never run the machine indoors, in a closed room, tunnel, pit or any poorly ventilated place. Keep the exhaust away from people, windows, doors and air intakes.

1.2 Fuel and fire

- Diesel fuel is flammable. Stop the engine and let it cool before refuelling. Do not smoke and keep sparks and flames away.
- Do not overfill the fuel tank; wipe up spilled fuel immediately.
- Keep welding sparks and spatter away from the fuel tank, fuel lines and the machine.
- Keep a fire extinguisher near the machine.

1.3 Hot parts and moving parts

- The engine, exhaust silencer, exhaust pipe and radiator become very hot. Do not touch them while running or shortly after stopping.
- Never open the radiator cap while the engine is hot – hot coolant can spray out.
- Keep hands, hair and clothing away from the fan, belts and other moving parts. Keep all doors closed during operation; open them only to check or service the machine with the engine stopped.

1.4 Electric shock

- The welding terminals and the auxiliary sockets are live whenever the engine is running.
- Earth the machine frame properly. Do not touch the electrode, holder or live parts with bare skin or wet gloves. Insulate yourself from the work and the ground.
- Do not use damaged cables. Do not connect the auxiliary output to a building supply without a proper change-over switch installed by a qualified electrician.
- Protect the machine from rain; do not operate it standing in water.

1.5 Arc welding hazards

- Wear a welding helmet with the correct filter (shade 11 – 13), leather gloves, apron and flame-resistant clothing.
- Weld only in a well-ventilated area; do not breathe welding fumes.
- Keep flammable materials away from the welding area. Never weld on containers that have held flammable substances.
- Persons with a cardiac pacemaker must consult their doctor before working near arc welding.

1.6 Battery

The battery contains acid and produces explosive gases. Keep sparks and flames away, wear eye protection, and disconnect the negative (–) terminal first and connect it last.

2 General description

The Cruxweld CWG40SD is a super silent, high-performance diesel welding generator that provides up to **400 A DC** for manual metal arc (stick) welding with electrodes up to 6.3 mm, and a **5.0 kVA** single-phase auxiliary power supply for tools and lights. It is designed for professionals on sites without mains power – pipelines, construction, fabrication yards, maintenance and repair – with the emphasis on ease of use, reliability and fuel economy.

2.1 Key features

- 400 A diesel welder and generator in one unit – welding and power generation.
- 5.0 kVA auxiliary power source.
- Totally brushless, high-frequency alternator designed for welding, with a constant current (CC) characteristic. The rotor has no windings, commutator, magnets, slip rings or rotating diodes – maintenance free and reliable.
- Super silent operation in a sound-proof enclosure (72 dB(A) at 7 m).
- Welding with electrodes up to 6.3 mm; continuous (stepless) welding current regulation.
- Proven with cellulosic electrodes (E6010, E7010-G, E8010-G) and other special electrodes – ideal for pipeline work.
- Smooth, stable arc with wide current range for most electrode types; precise arc control.
- Low fuel consumption – up to 12 hours of operation between refuelling.
- Alternator overload protection.
- Meters that are easy to read at almost any angle, even in direct sunlight.

2.2 Construction

A 2-cylinder, water-cooled diesel engine drives the welding alternator. Engine, alternator, radiator, battery, fuel tank and control panel are mounted on a common base frame inside a sound-proof, weather-protected canopy with lockable service doors. A two-wheel site trailer is available as an option.



CWG40SD on the optional two-wheel trailer

3 Technical specifications

Specification	Unit	CWG40SD
Welding generator		
Welding process	-	Stick (SMAW)
Operators	No.	Single
Welding current range	A, DC	50 - 400
Max. welding current at 60 % duty cycle	A	400
Max. welding current at 100 % duty cycle	A	310
Open-circuit voltage (max. / min.)	V	95 / 45
Suitable electrode diameter	mm	2.5 - 6.3
Engine		
Engine type	-	Diesel, 2 cylinders
Rated engine speed	rpm	1800
Engine rating	BHP	24
Engine cooling	-	Water cooled
Starting system	-	Electric starter
Battery	V - Ah	12 V - 65 Ah
Fuel	-	Diesel
Auxiliary power source		
Rating	kVA	5.0
Voltage / phase	V	230, single phase
Rated frequency	Hz	50 / 60
Power factor	-	1.0
MCCB rating	A	16
Output sockets	No.	2
General		
Insulation class / protection degree	-	H / IP23
Fuel consumption	L/h	2.8
Fuel tank capacity	L	40
Sound level	dB(A) at 7 m	72
Structure	-	Silent (sound-proof canopy)
Meters and indications	-	Lube oil pressure, fuel level, battery charging current, charging failure lamp, engine speed, hour meter
Overall dimensions (L x W x H)	mm	1650 x 780 x 1045
Dry weight	kg	910
Trailer	-	2 wheels (optional)

Specifications may change without notice as a result of continuous improvement.

4 Machine overview

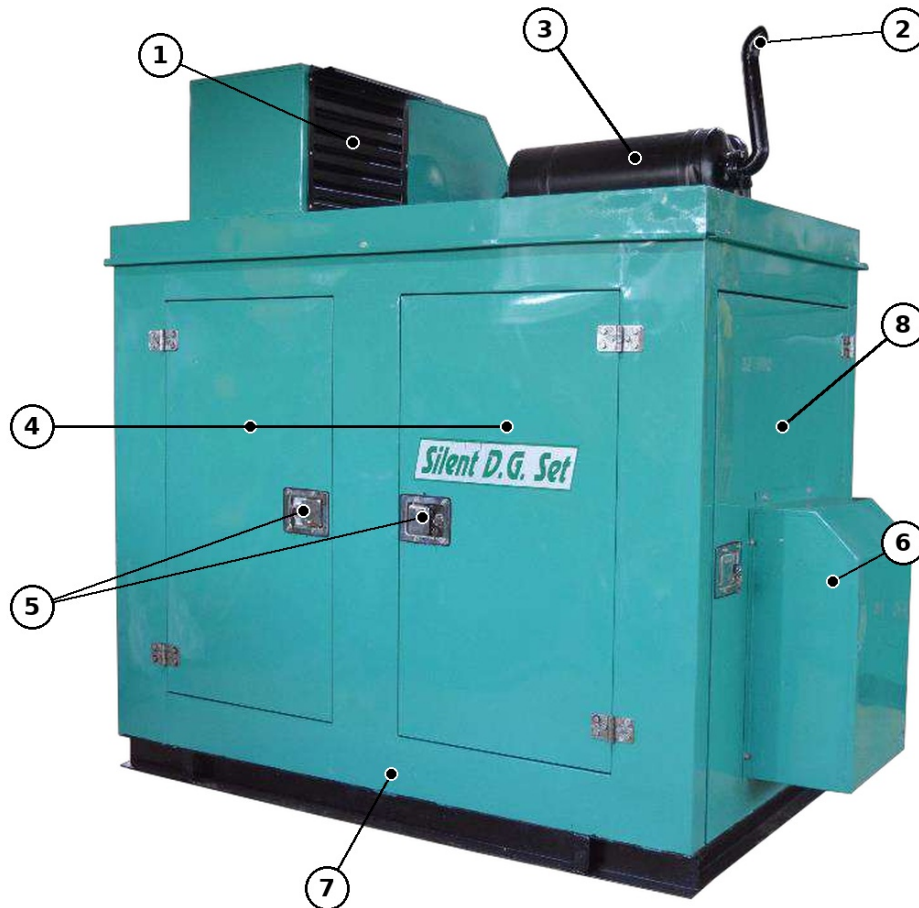


Fig. 4.1 External view of the CWG40SD

1	Radiator air outlet hood	5	Door locks
2	Exhaust pipe	6	Side terminal / air duct box
3	Exhaust silencer	7	Base frame
4	Lockable service doors (engine, control panel)	8	Side service door

4.1 Control panel

The control panel is behind the service doors. It contains the engine and welding controls:

Item	Function
Starter key switch	OFF – ON (panel and preheat) – START. Turn to START to crank the engine; release as soon as it starts.
Lube oil pressure gauge	Shows the engine oil pressure. It must rise within a few seconds of starting.
Fuel level indicator	Shows the fuel level in the tank.
Battery charging ammeter / charging failure lamp	Shows that the battery is being charged. The lamp lights if the charging system fails.
Engine speed meter and hour meter	Show the engine speed and the running hours (for the maintenance schedule).
Welding current regulator	Continuous (stepless) setting of the welding current from 50 to 400 A.
Welding output terminals (+ / –)	Connection of the electrode holder and work cables.
Auxiliary sockets (2) and MCCB (16 A)	230 V single-phase outputs for tools and lights, protected by the 16 A circuit breaker.

Note: The exact position of the controls depends on the panel version supplied. Refer to the labels on the panel.

5 Installation and preparation

5.1 Location

- Place the machine outdoors or in a very well-ventilated area, on firm, level ground (inclination not more than 10°).
- Leave at least **1 m** of free space around the machine for cooling air and service access. Do not block the air inlets or the radiator outlet.
- Point the exhaust away from people and buildings.
- Protect the machine from rain, dust and direct water spray.

5.2 Lifting and moving

- The machine weighs about 910 kg (dry). Lift it only with suitable equipment by the lifting points of the base frame or canopy, or with a forklift under the base frame.
- When using the optional trailer, observe the local rules for towing and do not exceed walking speed on rough ground.

5.3 Earthing

Connect the earth terminal of the machine to a good earth (earth rod) with a copper conductor of adequate size, especially when the auxiliary power is used.

5.4 Before the first start

1. **Engine oil:** check the level with the dipstick and top up with the grade recommended by the engine manufacturer.
2. **Coolant:** with the engine cold, check that the radiator is full; use clean water with coolant / anti-corrosion additive in the proportion recommended by the engine manufacturer.
3. **Fuel:** fill the tank with clean diesel fuel (40 L). Bleed the fuel system if the tank was empty.
4. **Battery:** connect the battery – positive (+) first, negative (–) last – and check that it is charged.
5. Check that all hoses, belts and connections are tight, and that no tools or rags are left inside the canopy.

6 Starting and stopping the engine

6.1 Daily checks before starting

- Engine oil level, coolant level and fuel level.
- Leaks of oil, fuel or coolant; condition of fan belt and hoses.
- Air filter indicator (if fitted) and radiator free of dirt.
- Welding cables disconnected or electrode holder placed on an insulated surface; auxiliary loads switched off.

6.2 Starting

1. Set the welding current regulator to minimum and switch off the auxiliary MCCB.
2. Turn the key to **ON**. The charging failure lamp and oil pressure warning should light.
3. Turn the key to **START**. Release it as soon as the engine starts. Do not crank for more than 10 seconds at a time; wait 30 seconds before trying again.
4. Check that the oil pressure rises and the charging lamp goes off.
5. Let the engine warm up without load for 3 – 5 minutes before welding.

▲ ATTENTION

If the oil pressure does not rise within 10 seconds, stop the engine immediately and find the cause.

6.3 Stopping

1. Stop welding and switch off all auxiliary loads.
2. Let the engine run without load for 3 – 5 minutes to cool down.
3. Turn the key to **OFF**.

6.4 During operation

- Watch the oil pressure, engine speed, charging and fuel level regularly.
- Refuel only with the engine stopped. Do not let the tank run dry – air in the fuel system stops the engine and must be bled out.
- Do not exceed the rated duty cycle of the welding generator.

7 Welding

7.1 Connecting the welding cables

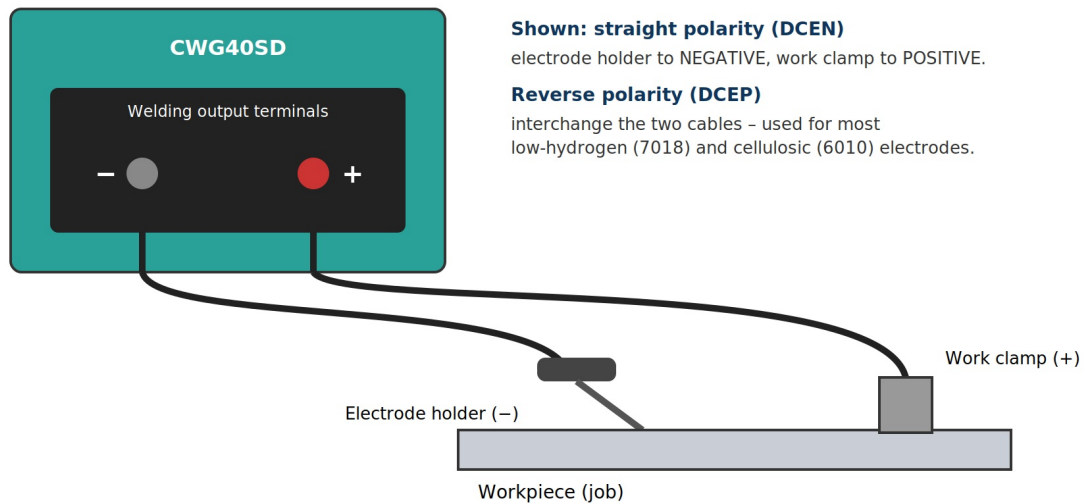


Fig. 7.1 Welding cable connection

1. With the engine stopped, connect the electrode holder cable and the work cable to the output terminals according to the polarity required by the electrode.
2. Tighten the terminals firmly. Connect the work clamp to clean metal close to the weld.

Welding current	Total cable length up to 30 m	30 – 60 m
up to 250 A	35 mm ²	50 mm ²
250 – 350 A	50 mm ²	70 mm ²
350 – 400 A	70 mm ²	95 mm ²

Table 7.1 Recommended copper welding cable size

7.2 Setting the current

Electrode diameter (mm)	2.5	3.15	4.0	5.0	6.3
Welding current (A)	60 – 90	90 – 140	130 – 190	180 – 260	250 – 350

Table 7.2 Guide values for mild steel electrodes (flat position) – always follow the electrode packet

7.3 Welding

1. Start the engine and let it warm up (Chapter 6).
2. Set the welding current with the regulator. The current can be adjusted while welding.
3. Strike the arc by scratching or tapping, hold a short arc and weld.
4. For cellulosic pipe electrodes (E6010 / E7010-G / E8010-G) use the polarity and current recommended by the electrode maker; the machine's arc characteristic is suited to vertical-down pipe welding.

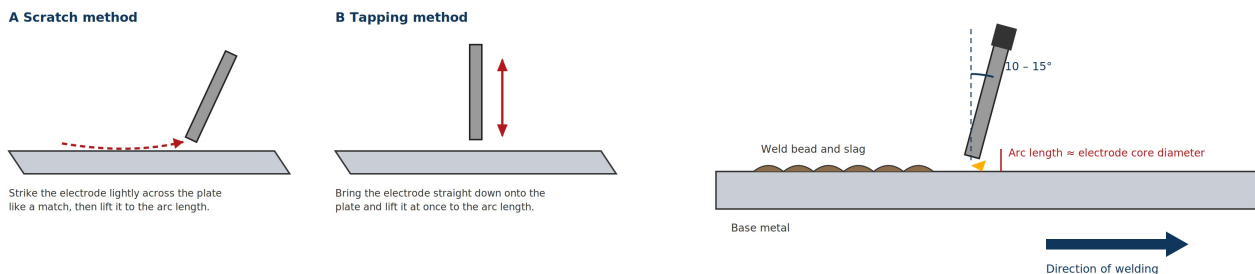


Fig. 7.2 Striking the arc and electrode position

8 Auxiliary power

The CWG40SD supplies **5.0 kVA, 230 V, single phase** through two output sockets protected by a 16 A MCCB.

1. Start the engine and let it warm up.
2. Plug in the tools or lights and switch on the MCCB.
3. Do not exceed the rated output. Check the total load before connecting – motors need 2 to 3 times their running power to start.
4. Switch off the MCCB and the tools before stopping the engine.

▲ ATTENTION

Do not use the auxiliary power and heavy welding at the same time unless the combined load is within the machine's rating. Use only tools in good condition, with earthed plugs.

8.1 Power application chart

Suggested power application	Running watts
Airless sprayer – 1/3 HP	600
Electric motor – 1 HP	1 000
Portable grinder – 7 in.	2 000
Drill – 1 inch	1 000
Drill – 1/2 inch	600
Bench grinder – 8 in.	1 400
Air compressor – 1 HP	975
Halogen work light	500
Hand drill – 3/8 inch	700
Submersible pump – 1 HP	1 000
Sump pump	600

9 Maintenance

▲ DANGER

Stop the engine, remove the key and disconnect the battery negative (–) terminal before any maintenance. Let the engine cool down.

Carry out the engine maintenance according to the engine manufacturer's manual supplied with the machine. The schedule below gives the main points; use the hour meter to plan the service.

Interval	Work
Daily / every 8 h	Check engine oil, coolant and fuel levels. Check for leaks. Clean dust from the air inlets and radiator fins. Check welding cables and connections.
Every 50 h	Clean or check the air filter (more often in dusty conditions). Drain water from the fuel filter / water separator. Check the fan belt tension and battery electrolyte and terminals.
First 50 h, then as per engine manual	Change the engine oil and oil filter.
Every 250 h	Replace the fuel filter; replace the air filter element if needed. Check hoses and clamps. Check tightness of all electrical connections of the alternator and control panel.
Every 500 h / yearly	Change the coolant. Check valve clearance and injectors as per engine manual. Blow out dust from the alternator with dry, low-pressure air.

- The brushless alternator needs no brush or slip-ring maintenance; keep it clean and dry.
- Keep the canopy sound-proofing material dry and free of oil.
- Use only genuine spare parts and the fuel, oil and coolant grades recommended by the engine manufacturer.

10 Troubleshooting

Problem	Possible cause	Remedy
Engine does not crank	Battery discharged or terminals loose / corroded; starter fault.	Charge or replace the battery; clean and tighten terminals; check the starter.
Engine cranks but does not start	No fuel; air in the fuel system; clogged fuel filter; water in fuel.	Refuel; bleed the fuel system; replace the filter; drain water.
Engine stops during operation	Fuel empty; low oil pressure or high temperature protection; overload.	Refuel and bleed; check oil and coolant levels; reduce the load.
Engine overheats	Low coolant; dirty radiator; loose fan belt; air inlet or outlet blocked.	Top up coolant; clean the radiator; adjust the belt; clear the air openings.
Black smoke	Overload; dirty air filter; injector fault.	Reduce load; clean or replace the air filter; have injectors checked.
Charging failure lamp on	Loose fan belt; charging alternator or regulator fault.	Adjust the belt; have the charging system checked.
No welding output	Cables not connected or broken; overload protection tripped; alternator fault.	Check cables and terminals; let the machine cool and reset; contact Cruxweld service.
Weak or unstable arc	Current set too low; long or thin cables; poor work connection; engine speed low.	Increase current; use shorter / larger cables; clean and tighten the work clamp; check engine speed.
Excessive spatter	Current too high; arc too long; wrong polarity.	Reduce current; shorten the arc; check polarity.
No auxiliary power	MCCB off or tripped; overload; socket fault.	Reset the MCCB; reduce the load; check the socket and plug.

If a fault cannot be corrected, contact Cruxweld service.

11 Storage and transport

11.1 Storage for more than one month

1. Run the engine to operating temperature, then stop it and change the engine oil.
2. Fill the fuel tank to prevent condensation.
3. Check that the coolant contains enough anti-freeze / anti-corrosion additive.
4. Disconnect the battery and keep it charged.
5. Clean the machine, close all doors and cover it. Store it in a dry, ventilated place.
6. Before using it again, carry out the checks of Chapter 5.4.

11.2 Transport

- Stop the engine and let it cool before transport.
- Secure the machine on the vehicle with straps through the base frame. Do not strap over the canopy roof or the exhaust.
- Close and lock all doors.

12 Warranty

Cruxweld warrants the CWG40SD against defects in material and workmanship for the period stated in the sales contract, from the date of invoice. The engine is also covered by the engine manufacturer's warranty terms. The warranty does not cover filters, belts, battery, fuses, welding cables and other wear parts, or damage caused by wrong fuel, oil or coolant, lack of maintenance, overload, running without coolant or oil, misuse or repair by unauthorised persons.

Model	CWG40SD
Machine serial number	
Engine serial number	
Invoice no. / date	
Customer	
Dealer stamp	

Service record

Date	Hours	Work carried out	Signature

For service and spare parts please contact:

Cruxweld Industrial Equipments Pvt. Ltd.

5, Sector 29, Faridabad - 121008 (Haryana), India

Phone: +91 8800 882 983 | +91 (129) 489 2868

Email: sales@cruxweld.com | Service: support@cruxweld.com

www.cruxweld.com



Cruxweld CWG40SD - Sound Proof Diesel Powered Welding Generator

Cruxweld Industrial Equipments Pvt. Ltd.

5, Sector 29, Faridabad - 121008 (Haryana), India

Phone: +91 8800 882 983 | +91 (129) 489 2868

Email: sales@cruxweld.com | Service: support@cruxweld.com | www.cruxweld.com

Cruxweld improves its products continuously. The technical data in this manual may change without notice.