

# **Full Digital Heavy Duty IGBT CO<sub>2</sub>/MAG/MMA Carrier Intelligent Multifunctional Inverter Welder User Manual**

Version: V1.0

No.: R33010192

---

Shenzhen Megmeet Electric Co., Ltd. provides comprehensive technical support for customers, covering but not limited to, CAN communication, welder network monitors, robot collaboration, welding process database software upgrade, and after-sale service. Users can contact the nearest Megmeet's offices or customer service centers, or directly contact Megmeet headquarters.

Shenzhen Megmeet Electric Co., Ltd.

All rights reserved. The content may subject to change without notice.

Shenzhen Megmeet Electric Co., Ltd.

Address: 5th Floor Block B, Ziguang Information Harbor, Langshan Road, Shenzhen, 518057,  
China

Zip code: 518057

Website: [www.megmeet.com](http://www.megmeet.com)

Customer service hotline: 4006662163

Email: [Welder.4S@megmeet.com](mailto:Welder.4S@megmeet.com)

# Preface

Thank you for choosing Megmeet's full digital heavy duty IGBT CO<sub>2</sub>/MAG/MMA carrier intelligent multifunctional inverter welder (hereinafter referred to as the welder).

This document covers the precautions on installation and cabling, parameter setup, troubleshooting, and daily maintenance. To ensure that the welder is installed and operated properly and can achieve its optimal performance, read this user manual before installation. This document must be kept properly and delivered to users of the welder.

# Safety Precautions

## Safe Definition



Follow instructions to perform operations. Failing to do so may result in death or serious injuries.



Follow instructions to perform operations. Failing to do so may result in medium or slight injuries or property damages.

- Read this document before using the welder to ensure proper use.
- Although this welder is designed and manufactured with safety considerations, pay attention to the precautions specified in this document when using the welder, so as to ensure the safety of you and related personnel and prevent serious accidents.
- Misuse of this welder may cause injuries.

## Safety Precautions

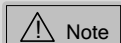


- Before moving the welder, cut off the input power of the distribution box.
- When using a crane to move the welder, make sure that the hoist ring has been tightened and the housing and cover plates of the welder have been installed.
- If a crane is required to move the welder, use two lifting belts and the included angle of each lifting belt and the vertical direction must be less than 15 degrees.
- Do not lift the welder and other objects at the same time.
- Install the welder on non-inflammable objects to prevent fire risks.
- Do not place inflammable objects near the welder; failing to do so may lead to fires.
- Do not install the welder in an environment with explosive gas; failing to do so may lead to explosion risks.
- Cabling must be performed by certified personnel; failing to do so may lead to electric shock.
- Before cabling, make sure that the power input has been disconnected completely; failing to do so may lead to electric shock.
- Before connecting the power supply, connect the grounding terminal of the welder properly; failing to do so may lead to electric shock.
- Before connecting the power supply, install the cover plates; failing to do so may lead to electric shock.
- Do not touch terminals when the power supply is connected; failing to do so may lead to electric shock.
- Do not operate the welder with wet hands; failing to do so may lead to electric shock.
- Perform maintenance 5 minutes only after the power supply is disconnected, the **ON** indicator is



completely off, and the voltage of the positive and negative bus bars is lower than 36 V; failing to do so may lead to electric shock.

- Parts can be replaced only by professionals. Do not leave cable stubs or metal objects in the welder; failing to do so may lead to fires.
- After replacing the control board, set the parameters correctly before using the welder; failing to do so may lead to property damages.
- Use insulation tapes to wrap the copper nose that connects to cables; failing to do so may lead to electric shock.



- Do not impose force on the control panel and cover plates when moving the welder; failing to do so may lead to disconnection of the control panel and cover plates and damages of properties.
- When moving the welder using a forklift truck, fix the casters of the welder.
- Install the welder only at the place where the welder can be held stably. Otherwise, falling of the welder may lead to injuries or property damages.
- Do not install the welder at the place where water spray may occur; failing to do so may lead to property damages.
- Prevent bolts, washers, or metal rods from dropping into the welder. They may lead to fires and property damages.
- If the welder is damaged or incomplete, do not install or use it; failing to do so may result in fires and injuries.
- Firmly connect the main loop terminal to the copper nose; failing to do so may result in property damages.

## Usage Precautions



- To ensure safety, welding must be performed by personnel who understand safe operations and possess welding skills.
- Do not use the welder for purposes other than welding.
- Installation, commissioning, and maintenance of the welder can only be performed by professional personnel.
- People using heart pacemakers are not allowed to get close to the welder and welding sites without doctors' permission.
- Do not touch the live parts; failing to do so may result in electric shock.
- Do not use cables with insufficient cross-sectional areas, cables with exposed conductors, and cables with damages.



- Do not remove the housing or cover plates when the welder is in use.
- Wear insulation gloves with good insulation performance and without damages.
- Take safety measures when doing tasks at high places.
- Disconnect the power supply of the welder and distribution box when the welder is not used.
- When performing welding in narrow or confined space, adopt supervision and ensure good ventilation or use respiratory protection tools; failing to do so may result in asphyxia due to hypoxia.
- Hazardous smoke, dust, and gas may be generated during welding. Ensure good ventilation or use respiratory protection tools; failing to do so may result in injuries.
- Do not weld pressure vessels that contain gas, such as air pipes and seal pots.
- Do not move hot workpieces close to combustible materials.
- Do not perform welding near combustible materials.
- Deploy fire extinguishers near welding sites.
- Fix gas cylinders using only dedicated stands; failing to do so may result in injuries when the gas cylinders fall down.
- Do not connect electrodes with gas cylinders.
- Follow instructions to correctly use pressure reducing valves.
- Only professional personnel are allowed to disassemble and repair pressure reducing valves.
- Do not touch the rotating parts such as the fan and wire feeder when the welder is in use; failing to do so may result in injuries.
- When performing or supervising welding, use protective equipment with sufficient shading degree to prevent arc from harming eyes or skin.
- Use protection gears, such as welding-dedicated protection leather gloves, clothes with long sleeves, foot protection, aprons, and goggles, to protect against arc, spatter, and welding slag.
- Set up protective barriers around welding sites to prevent arc from injuring others.
- Use soundproof devices to prevent noise hazards.



- Do not use this welder for tasks other than welding.
- Do not place heavy objects on the welder.
- Do not seal or block the air vents of the welder.
- Place the welder at places where metal objects such as spatters are unable to enter the welder.
- Keep the welder at least 30 cm away from walls and other welder.
- Use screens to prevent wind from directly blowing against arc.
- Fix the casters to prevent the welder from sliding.
- To prevent electromagnetic hazards, implement electromagnetic shielding for cables and welding sites.
- The slope of the surface must be less than 15 degrees to prevent the welder from falling down.
- The IP rating of the welder is IP23S and is applicable in the following conditions:  
Operating temperature range: -10°C - +40°C



Transportation and storage temperature range:  $-40^{\circ}\text{C}$  -  $+70^{\circ}\text{C}$

Operating humidity range:  $\leq 75\%$  RH at  $40^{\circ}\text{C}$ ;  $\leq 95\%$  RH at  $20^{\circ}\text{C}$

Altitude:  $\leq 2000$  m

The operating environment must not have significant mechanical vibration or mechanical impact.  
The welder must not be tilted more than  $15^{\circ}$ .

The content of dust, metal dust, and corrosive gas must not exceed the normal level.

Avoid the welder from rain and prevent the fan from taking in rain.

## Scrapping Precautions

Pay attention to the following when scrap the welder:

- The electrolytic capacitors on the main circuit and the PCB may explode when getting burnt.
- Toxic gases may be emitted when plastic parts such as the front panel are burnt.
- Dispose the welder as industrial waste.

# Contents

<b>Chapter 1 Product Overview .....</b>	<b>1</b>
1.1 Model Description .....	1
1.2 Technical Specifications .....	1
1.3 External Dimensions and Gross Weight .....	3
1.4 System Components and Configuration .....	4
1.4.1 System Components .....	4
1.4.2 Configuration .....	5
1.5 System Features .....	6
<b>Chapter 2 Installation and Cabling .....</b>	<b>9</b>
2.1 Installation Requirements .....	9
2.2 Transportation Precautions .....	9
2.3 Power Supply Specifications .....	10
2.4 Open-Package Inspection .....	10
2.5 Electric Connections .....	11
2.5.1 Welder Output Cables .....	11
2.5.2 Connecting the Gas Cylinder .....	12
2.5.3 Connecting the Wire Feeder .....	13
2.5.4 Connecting the Welding Torch .....	14
2.5.5 Connecting the Welding Power Cable (Grounding Cable) on the Workpiece Side .....	14
2.5.6 Connecting the Power Cable on the Power Input Side .....	14
2.6 Welding Preparation .....	15
2.6.1 Safety Measures .....	15
2.6.2 Installing the Welding Wire .....	16
2.6.3 Turning on the Power Switch .....	16
2.6.4 Adjusting the Gas Flow .....	16
2.6.5 Wire Inching .....	17
2.6.6 Welding Conditions .....	18
2.7 Post-welding Tasks .....	22
<b>Chapter 3 Welder Operation Description .....</b>	<b>23</b>
3.1 Welder Control Panel Structure .....	23
3.1.1 Front Control Panel .....	23
3.1.2 Remote Control Box of the Wire Feeder .....	24
3.2 Buttons and Knobs .....	26
3.3 Screens and LED Indicators .....	26
3.4 Control Panel Functions .....	28
3.4.1 Gas Shielded Arc Welding .....	28
3.4.2 Welding Without Ending Arc .....	29
3.4.3 Welding with Ending Arc .....	31
3.4.4 Welding with Repeated Ending Arc .....	32
3.4.5 Arc Dynamic .....	33

3.4.6 Detect Gas.....	34
3.4.7 Wire Inching.....	35
3.4.8 SAVE and LOAD.....	36
3.4.9 Lock .....	37
3.4.10 Internal Menu.....	46
3.4.11 Welder Network Monitors .....	46
3.5 Welding Electrode.....	47
3.6 Intelligent Function Description.....	47
3.6.1 Energy Conservation Function of the Fan.....	47
3.6.2 Safety Protection Function for the Welding Torch .....	47
3.6.3 Slow Wire Inching .....	47
3.7 Restoring Factory Settings .....	48
<b>Chapter 4 Maintenance.....</b>	<b>49</b>
4.1 Daily Inspection .....	49
4.2 Regularly Inspection.....	50
4.3 Troubleshooting.....	51
4.3.1 Welder Fault Indicator .....	52
4.3.2 Welder Error Codes and Solutions.....	52
4.3.3 Rectifying Welder Faults and Welding Process Issues.....	56
4.4 After-Sale Service.....	57
<b>Appendix 1 Technical Specifications .....</b>	<b>58</b>
<b>Appendix 2 Electric Connections .....</b>	<b>59</b>
<b>Appendix 3 Components.....</b>	<b>60</b>
<b>Appendix 4 Detailed Component List.....</b>	<b>61</b>



# Chapter 1 Product Overview

This chapter describes the model, appearance, dimensions, system components, system configuration, technical specifications, and system features of the Artsen CM500C full digital heavy duty IGBT CO<sub>2</sub>/MAG/MMA carrier intelligent multifunctional inverter welder.

## 1.1 Model Description

Figure 1-1 describes the welder model code format.

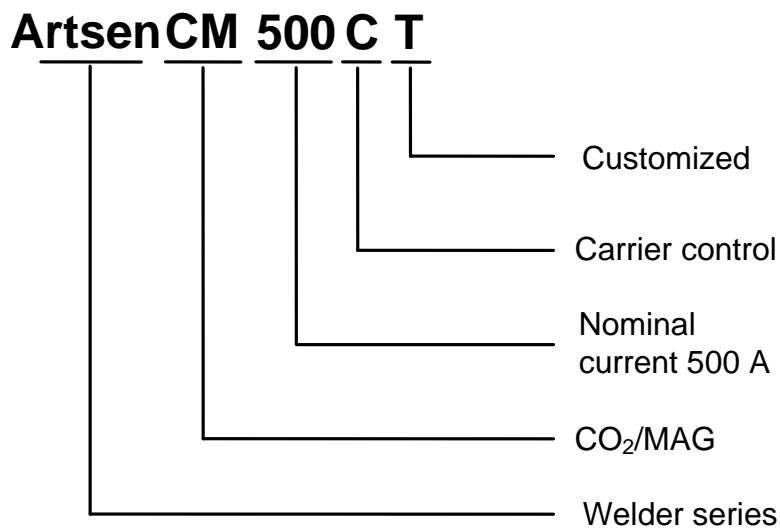





Figure 1-1 Model description

## 1.2 Technical Specifications

Table 1-1 describes the welder technical specifications.

Table 1-1 Technical specifications

Item		Description
		Artsen CM500C
Input	Rated voltage/frequency	Three-phase without neutral line, 380 V 50 Hz
	Working voltage range	Voltage: 285 V - 475 V; voltage unbalance rate: < ±5%; frequency: 30 – 80 Hz
	Static tolerant input voltage	Phase-to-phase voltage 520 V AC
	Rated input power factor	0.93
Output	Rated open circuit voltage	71 V
	Rated output current/voltage for gas shielded welding	50 A/16.5 V - 500 A/39 V
	Rated output current/voltage for manual welding	50 A/22 V - 500 A/40 V
	Rated duty cycle	Ambient temperature 104.00°F: 500 A @ 100%

Item	Description	
	Artsen CM500C	
Change rate of rated output voltage	< ±5% (cold and hot states; 10% input voltage fluctuation)	
Line regulation	5%	
Output characteristics	CV/CC	
Output voltage range	Adjustment range: 12 – 50 V	
Output current range	Adjustment range: CO <sub>2</sub> /MAG: 50 - 500 A; MMA: 50 - 500 A Instant short-circuit peak current: > 550 A	
Adjustment range of ending arc voltage	Adjustment range: 12 – 50 V; step: 0.1 V	
Adjustment range of ending arc current	Adjustment range: 50 – 500 A; step: 1 A	
Total positive and negative output cable length	Rated input; 50 m/70 mm <sup>2</sup> ; 500 A 100%	
Main control functions	LED display	Sets welding voltage and current values, and displays welding voltage and current values and error codes.
	Gas type	CO <sub>2</sub> , MAG
	Wire type	Solid wire, flux-cored wire, and electrode
	Wire diameter	1.0, 1.2, 1.4, 1.6
	Welding control	Welding with ending arc Welding without ending arc Welding with repeated ending arc
	Gas detection	Checks before welding whether a shielding gas is used.
	Wire inching	Inches wire before welding.
	Current and voltage	The current and voltage are set independently, with the current ranging from 50 A – 500 A and the voltage ranging from 12 V - 50 V.
	Arc dynamic	The knob on the control panel can be used to set the value within the range of -9 to +9, where -9 indicates the softest arc and +9 indicates the hardest arc.
	Ending arc voltage	The voltage can be set using the knob on the remote control box of the wire feeder within the range of 12 V – 50 V.
	Ending arc current	The current can be set using the knob on the remote control box of the wire feeder within the range of 50 A – 500 A.
	Current setup for manual welding	The current can be set using the knob on the control panel within the range of 50 A - 500 A.
	ENTER  , LOAD  , and SAVE  buttons	They are used to confirm, save, load, and lock welding parameters.

Item		Description
		Artsen CM500C
Protection function		Phase loss protection Phase unbalance protection Input overvoltage protection Input undervoltage protection Output overvoltage protection Overheat protection Overcurrent protection Overload protection
Environment	Application site	The content of dust, acid, and corrosive gas or object in the surrounding atmosphere must not exceed the normal level (except those generated during welding).
	Altitude	≤ 2000 m
	Ambient temperature	-10°C - +40°C (Perform derating when the ambient temperature ranges between 40°C and 50°C.)
	Humidity	< 95% RH without condensation
	Vibration	< 200 Hz; < 1.0 m <sup>2</sup> /s <sup>3</sup>
	Storage temperature	-40°C - +70°C
Structure	Protection class	IP23S
	Cooling mode	Forced air cooling with fan control
Efficiency		Rated: 87%
Insulation class		H

### 1.3 External Dimensions and Gross Weight

Figure 1-2 shows the dimensions of the welder. Table 1-2 lists the gross weights of the welder and its accessories.

Table 1-2 Gross weights of the welder and its accessories

Component	Gross Weight
	Artsen CM500C
Welder	55 kg
Wire feeder	13.5 kg
Welding torch	3.5 kg

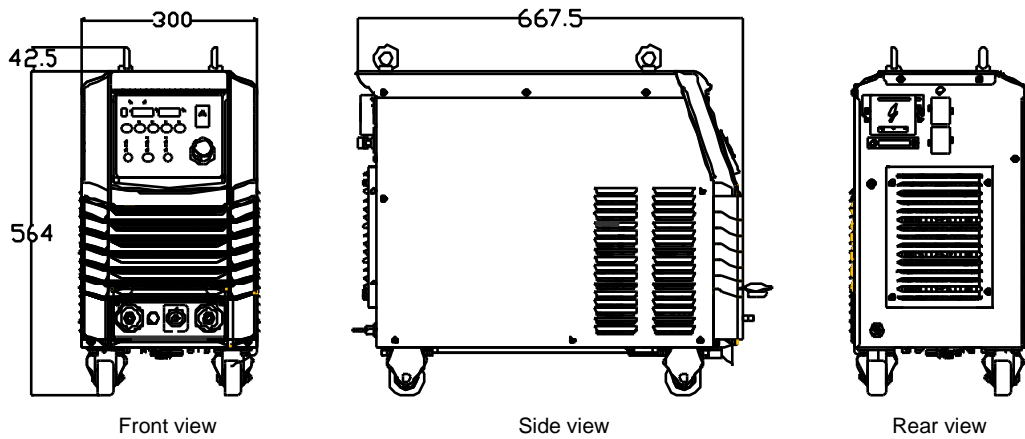


Figure 1-2 Welder dimensions (unit: mm)

## 1.4 System Components and Configuration

### 1.4.1 System Components

Figure 1-3 shows the components of the welder.

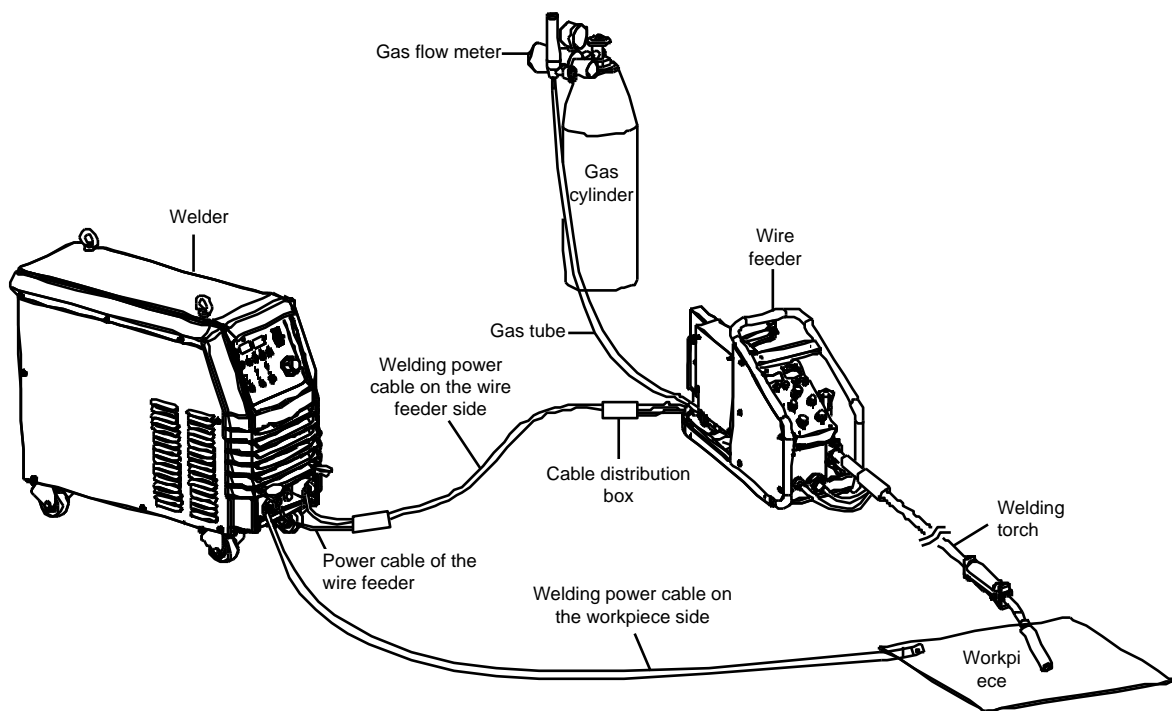


Figure 1-3 System components

Figure 1-4 shows the structure of the welder.

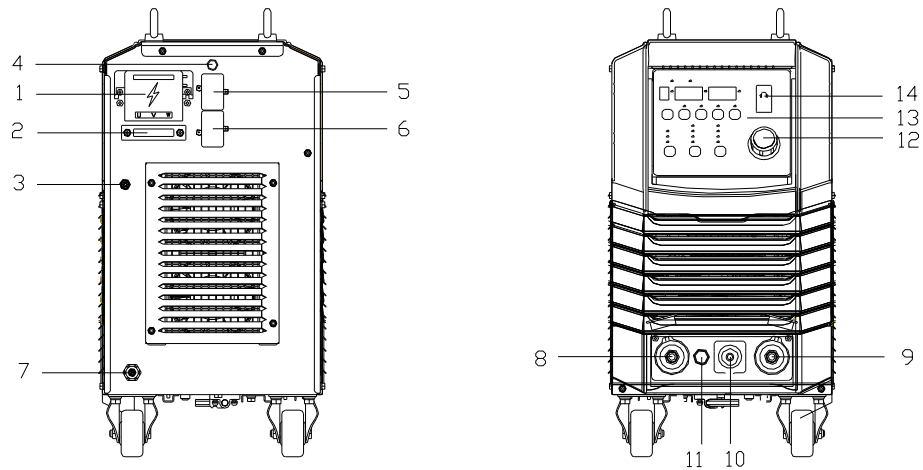


Figure 1-4 Welder structure

SN	Name	Function
1	Input connector	Connects to the AC power supply.
2	Power cable clip	Fastens the AC power input cable.
3	M6 grounding stub	Connects to the grounding cable.
4	Fuse holder of the electrically-heated gas regulator	Provides an 8 A fuse tube capacity.
5	Socket of the electrically-heated gas regulator	Provides a 36 V AC power supply for the electric heating gas regulator.
6	Communication connector	Facilitates communication with a computer.
7	Gas tube connector	Connects to the gas tube.
8	Negative output terminal	Connects to the welding material power cable.
9	Positive output terminal	Connects to the wire feeder power cable.
10	Gas tube connector	Connects to the gas tube.
11	Connector of the wire feeder power cable	Connects to the power cable of the wire feeder.
12	Parameter adjustment knob	Adjusts welding parameters. For details, see the operation description.
13	Control panel	Adjusts the welding mode. For details, see the operation description.
14	Power switch	Connects or disconnects the AC power supply.

## 1.4.2 Configuration

Table 1-3 shows the configuration list of the welder.

Table 1-3 Artsen CM500C configuration list

Name	Specifications	Quantity	Remarks
500 A power supply	Artsen CM500C	1	Standard
Wire feeder	WF2-50GZ-MC	1	Standard
Welding torch compliant with Japanese standards	KR-500/QTB-500A	1	Either type of welding torch is provided. By default, a welding torch compliant with Japanese standards is provided.

Welding torch compliant with European standards	MB 36 KD/N36	1	
User manual	Artsen CM500C Welder User Manual	1	Standard
Hex key	/	1	Standard
Bundle of output cables	3 m – 50 m (optional)	1	Standard
Welding power cable on the workpiece side	1.8 m	1	Standard
Electrically-heated gas regulator	GH-257-36/394C-25L-36	1	Optional
Welder caster	/	4	Optional
Welder tractor	29140008	1	Optional
Wire feeder caster	/	4	Optional
European-style adapter	ZK-HQ-C1-000	1	Optional

You must prepare the following:

### Shielding gas

Prepare CO<sub>2</sub> or a mixed gas. (Refer to Section 2.6.6 Welding Mode Setup Mode.)

CO<sub>2</sub>: The purity must be at least 99.5% and the moisture must be less than 0.005%.

MAG: Ar (80%) and CO<sub>2</sub> (20%)

### Welding Wire

Refer to Section 2.6.6 "Welding Conditions."

## 1.5 System Features

### Duty Cycle

Duty cycle refers to the percentage of the time when the welder generates the rated output in the 10-minute unit time. The rated duty cycle of the Artsen CM500C welder is 100%. See Figure 1-5.

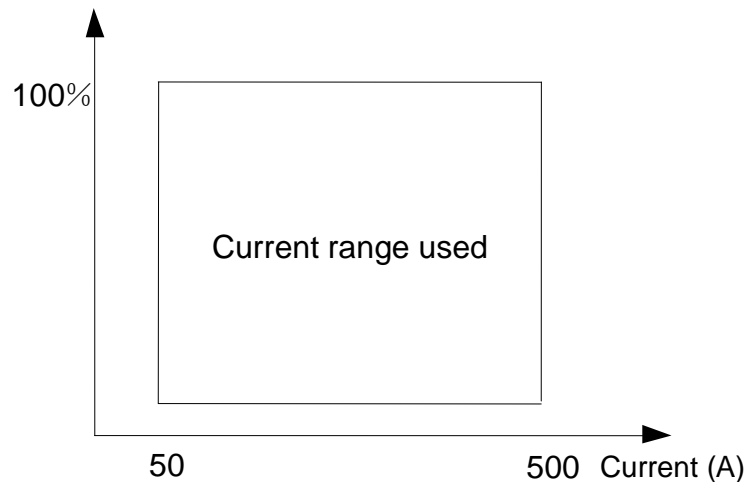


Figure 1-5 Schematic diagram of the duty cycle of Artsen CM500C

If the welder exceeds its rated duty cycle for a long time, the welder will become overheated, resulting in aging or even damages of the welder.

If this welder is used along with other parts such as welding torches, the lowest duty cycle of the parts must be applied to the entire set of device.

#### Static and External Characteristics

The welder in CO<sub>2</sub>/MAG mode uses a constant-voltage welding power source and its characteristics are shown in Figure 1-6. The welder in welding electrode mode uses constant-current welding power source and its characteristics are shown in Figure 1-7.

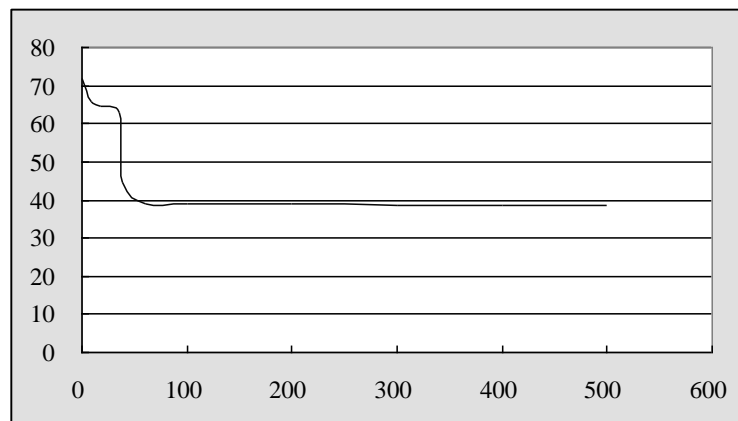


Figure 1-6 Schematic diagram of constant-voltage welding power source (39 V)

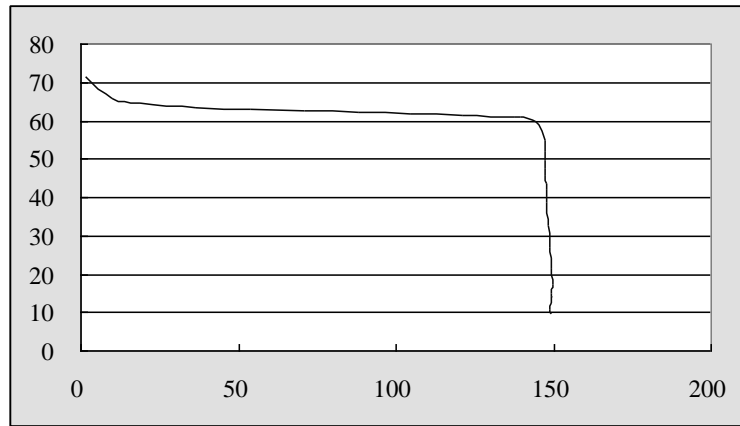


Figure 1-7 Schematic diagram of constant-current welding power source (150 A)



# Chapter 2 Installation and Cabling

This chapter describes the welder installation requirements, installation procedure, and precautions.

## 2.1 Installation Requirements

### Environment Requirements

Pay attention to the following when selecting the installation environment:

The installation site must have good ventilation and vibration must be less than  $5.9 \text{ m/s}^2$  (0.6g).

Do not install it at a site with lots of dust or metal dust.

Do not install it at a site with corrosive or explosive gas.

The ambient temperature must range from  $-10^\circ\text{C}$  to  $+40^\circ\text{C}$ . When the temperature exceeds  $40^\circ\text{C}$ , forcible external cooling or temperature derating is required.

The humidity must be lower than 95% without condensation.

When necessary, use windbreak at the welding site to prevent wind from affecting the welding quality.

If you have special installation requirements, perform prior consultation and confirmation.

### Installation Space Requirements

The welder must be at least 20 cm away from walls. If there are multiple welders, they must be at least 30 cm away from each other. You are recommended to reserve space for the welders as specified in Table 2-1.

Table 2-1 Space required for welder installation

	Front	Top	Left	Right	Back
Space required	$\geq 20 \text{ cm}$	$\geq 10 \text{ cm}$	$\geq 20 \text{ cm}$	$\geq 20 \text{ cm}$	$\geq 20 \text{ cm}$

## 2.2 Transportation Precautions

1. Before moving the welder, cut off the input power of the distribution box.
2. When using a crane to move the welder, make sure that the hoist ring has been tightened and the housing and cover plates of the welder have been installed.
3. If a crane is required to move the welder, use hoist rings and two lifting belts, and the included angle of each lifting belt and the vertical direction must be less than 15 degrees. See Figure 2-1.
4. Do not lift the welder and other objects at the same time.
5. When moving the welder using a forklift truck, fix the casters of the welder.

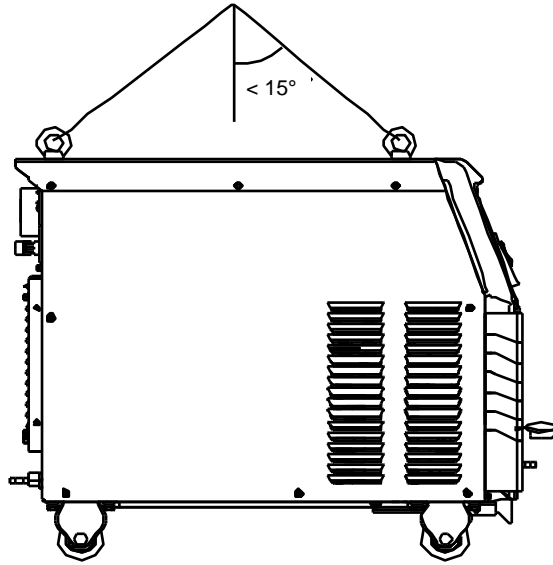


Figure 2-1 Schematic diagram of moving the welder using a crane

## 2.3 Power Supply Specifications

Table 2-2 provides the power supply specifications.

Table 2-2 Power supply specifications

Item		Description
		Artsen CM500C
Power supply feature		Three-phase 380 V AC 50 Hz/60 Hz
Power device capacity	Grid	30 kVA or greater
	Generator	50 kVA or greater
Input protection device (distribution box)	Air circuit breaker	Grade C and 63 A or greater
Power cables	Input on the welder side	16 mm <sup>2</sup> or greater
	Output on the welder side	50 mm <sup>2</sup> or greater
	Housing grounding cable	≥ Power supply cable

### Safety Warning

When the operating site is wet and the welder is used on an iron plate or frame, install a ground fault circuit interrupter (GFCI).

## 2.4 Open-Package Inspection

When opening the package, perform the following inspection carefully:

1. Check whether the product is broken or damaged.
2. Check whether the rated values on the label are consistent with your order.

The product and its package have been carefully checked before delivery. If you identify a problem, contact us or your supplier as soon as possible.

You can open the package and perform inspection only after the product arrives at the installation site. Product inspection must be performed jointly by the user's representatives and Megmeet's representatives.

The inspection procedure is as follows:

1. Open the package to which the packing list is attached.
2. Take out the packing list.
3. Check the parts against the packing list.
4. Check the quantities and SNs specified on the package.
5. Check whether all the expected parts are delivered.
6. Check the quantities and types of accessories.
7. Check whether the product is intact.

## 2.5 Electric Connections

---

### Safety Warning

1. Connections must be set up by certified professional electric device operators.
  2. Electric connections can be set up only after the distribution box is switched off and necessary safety measures are taken.
  3. Use specified cables.
  4. Do not touch electric connections with wet hands.
  5. Do not place heavy objects on the power cables.
  6. Running water pipes and reinforcing bars of houses may not be adequately grounded. Do not connect grounding cables to them.
  7. Each welder is equipped with one air circuit breaker or fused switch.
- 

### 2.5.1 Welder Output Cables

1. Remove the protective cover of the output terminals. (See Figure 2-2.)
2. Take out the hex key from the bottom of the welder. See Figure 2-2.
3. Remove the M10 nut of the output terminal.
4. Fasten the power cable in the cable bundle and the M10 ring terminal of the welding power cable of the workpiece to the positive output terminal and negative output terminal respectively.
5. Use the hex key to fasten the M10 nuts and put the hex key back.
6. Remove the nut of the power cable connector of the wire feeder.
7. Connect the M6 cable ring terminal of the wire feeder power cable included with the cable bundle to the power cable connector, and fasten the nut.

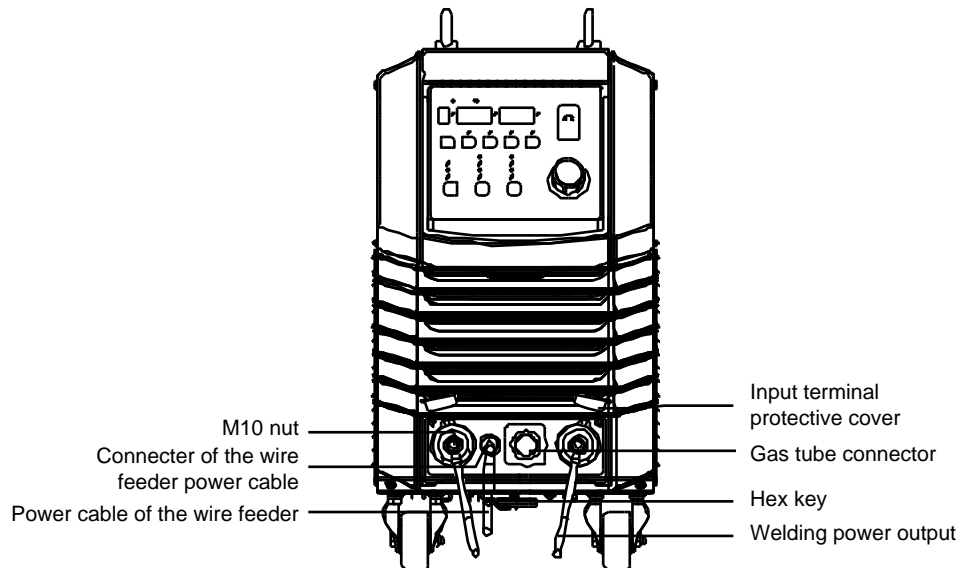


Figure 2-2 Schematic diagram of connecting the positive and negative output terminals with the welding power cables of the wire feeder and workpiece

## 2.5.2 Connecting the Gas Cylinder

### Safety Warning

1. Connections must be set up by certified professional electric device operators.
2. Before connection, read the user manual for the electrically-heated CO<sub>2</sub> regulator.

#### **The procedure for connecting to the gas cylinder is as follows:**

1. Use installation nuts to mount the electrically-heated CO<sub>2</sub> regulator (see Figure 2-3) to the gas outlet of the gas cylinder, and fasten the regulator.
2. Connect one end of the gas tube to the gas tube connector of the regulator and use a fastener to fasten the connection. Connect the other end to the wire feeder.
3. If CO<sub>2</sub> is used as the shielding gas, connect the heating power cable to the 36 V AC power jack of regulator on the rear of the welder.
4. Connect the grounding cable to implement reliable grounding. Figure 2-3 shows the cable connections.

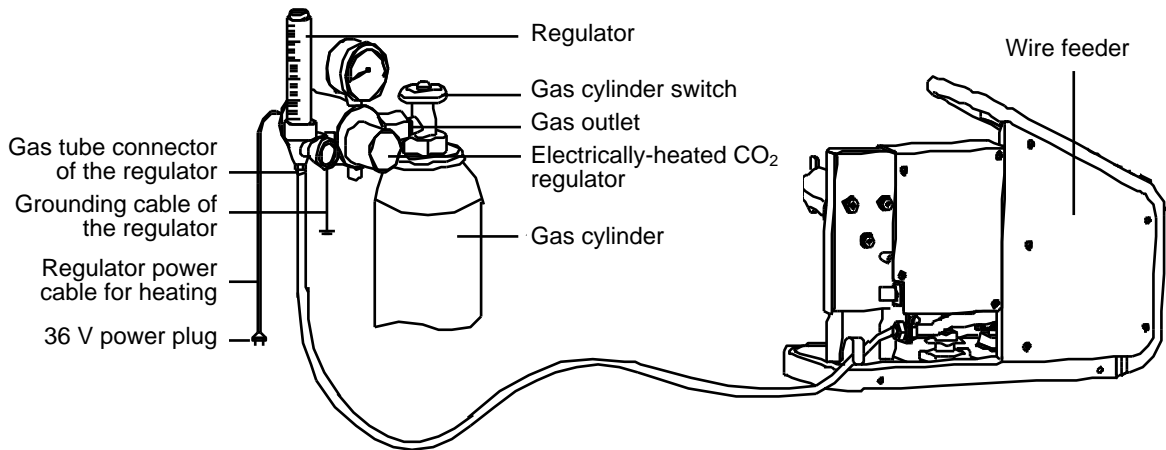


Figure 2-3 Schematic diagram of connecting the gas tube

### Gas Usage Notes

1. If the welder works in the CO<sub>2</sub> welding mode, use CO<sub>2</sub> as the shielding gas.
2. If the welder works in the MAG welding mode, use the mixed gas, which consists of CO<sub>2</sub> (5% - 10%) and Ar (purity > 99.9%), as the shielding gas.
3. If two types of gas must be mixed, use a gas mixer and ensure that the gases are mixed evenly.

### 2.5.3 Connecting the Wire Feeder

The procedure for connecting the wire feeder is as follows:

1. Fix the gas tube, positive output welding cable, and wire feeder power cable with the clamp at the rear of the wire feeder.
2. Connect the M6 ring terminal of the wire feeder power cable to the power cable connector at the rear of the wire feeder, and fasten the connection.
3. Connect the gas tube to the copper connector at the rear of the wire feeder and fasten the hose clamp of the gas tube.
4. Connect the positive output welding cable to the M10 threaded rod on the bottom plate of the wire feeder, and use an adjustable wrench to fasten the nut.
5. Figure 2-4 shows the cable connections.

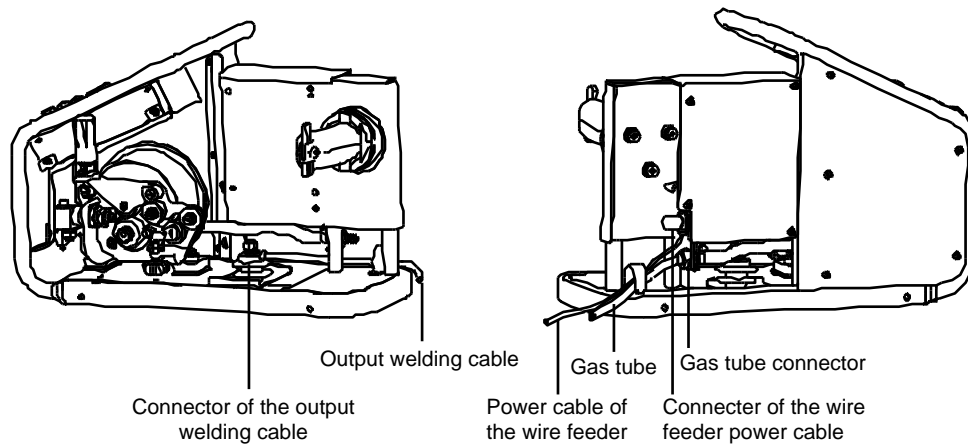


Figure 2-4 Schematic diagram of connecting the wire feeder

## 2.5.4 Connecting the Welding Torch

After cabling for the wire feeder is complete, refer to the wire feeder user manual and welding torch user manual to connect the welding torch to the wire feeder. Figure 2-5 shows the connection.

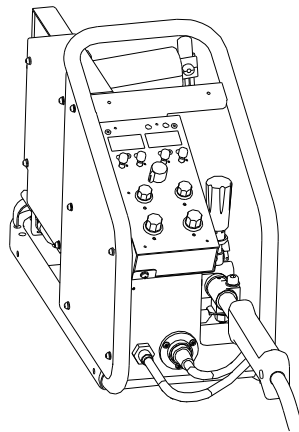


Figure 2-5 Schematic diagram of connecting the welding torch to the wire feeder

## 2.5.5 Connecting the Welding Power Cable (Grounding Cable) on the Workpiece Side

On the workpiece side, connect one end of the welding power cable to the workpiece and ground the workpiece properly with a cable.

## 2.5.6 Connecting the Power Cable on the Power Input Side

1. Turn off the power switch of the distribution box (user equipment).
2. Remove the input terminal cover. See Figure 2-6.
3. Connect one end of the input power cable to the power input terminal and use the power cable clamp to fix the cable on the rear plate of the welder. Connect the grounding cable to the M6 grounding threaded rod on the housing of the welder.

 Note

The welder has no special requirement for the phase sequence of the three-phase power supply from the grid. The cross-sectional area of the input power cable for Artsen CM500C must be at least 16 mm<sup>2</sup>.

4. Install the input terminal cover.
5. Connect the other end of the input power cable to the output terminal of the power switch of the distribution box. See Figure 2-6.

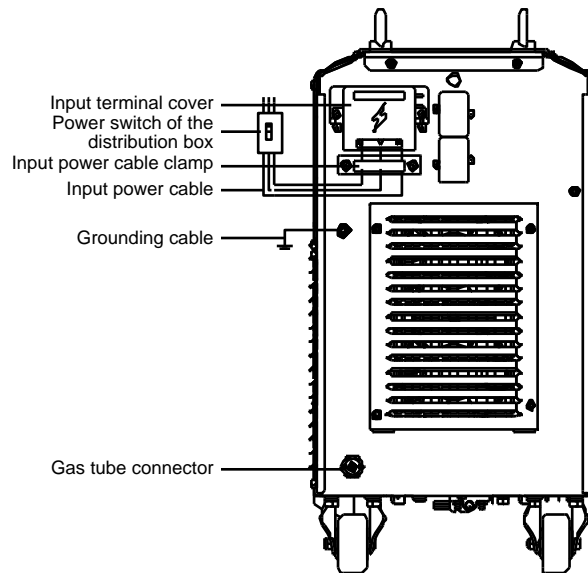


Figure 2-6 Schematic diagram of connecting the power cable on the power input side

## 2.6 Welding Preparation

### 2.6.1 Safety Measures

#### Protection Tools

- Use ventilation devices or respiratory protection tools according to regulations to prevent gas poisoning, hypoxia, and dust poisoning.
- When performing or supervising welding, use protection tools or wear goggles with sufficient shading degree.
- Wear goggles to prevent spatters or welding slag from injuring your eyes.
- Use protection gears such as welding-dedicated protection leather gloves, clothes with long sleeves, foot protection, and aprons.
- Set up protective barriers around welding sites to prevent arc from injuring others.
- Use soundproof devices to prevent noise hazards.
- Use windbreak at the welding site to prevent wind from affecting the welding quality if a ventilator is used or the outdoor welding environment is windy.

**For selection of light filters for the CO<sub>2</sub>/MAG welding mask, see Table 2-3.**

Table 2-3 Selection of light filters for the GB-T3609-1994 welding mask

Shading Numeral	Arc Welding and Cutting Task
1.2 1.4 1.7 1.2	Protection against sidelight and stray light
3 4	Supportive task
5 6	Arc welding task with a 30 A or lower current
7 8	Arc welding task with a 30A to 75A current
9 10 11	Arc welding task with a 75 A to 200 A current
12 13	Arc welding task with a 200 A to 400 A current
14	Arc welding task with a 400 A or higher current

**Cable Connection Inspection**

Fix the welder: Place the welder on a dry and level welding post with good ventilation.

Confirm cable connections: Refer to Section 2.5 "Electric Connections" to check the connections.

1. Check whether the grounding cable, input power cable, workpiece power cable, and workpiece (1) are connected correctly.
2. Check whether the wire feeder and welder are connected correctly.
3. Check whether the welding torch and wire feeder are connected correctly.
4. Check whether the gas cylinder, gas regulator, and wire feeder are connected correctly.

**Other Inspection Items**


Check the shielding gas, welding conditions, and extended cables.

**2.6.2 Installing the Welding Wire**

See the *User Manual for CO<sub>2</sub>/MAG Wire Feeder*.

**2.6.3 Turning on the Power Switch**

1. Turn on the switch of the distribution box and connect the three-phase 380 V power supply.
2. Turn the switch of the welder to the **ON** position. See Figure 1-4.

** Safety Warning**

Keep fingers, hair, and clothes away from the rotating parts such as the cooling fan and the wire inching roll of the wire feeder.

**2.6.4 Adjusting the Gas Flow**

1. Turn on the switch of the gas cylinder. (See Figure 2-7.)



2. Turn on the flow adjusting knob.
3. Press the gas detection button on the control panel and rotate the knob to set the gas flow to an appropriate level.

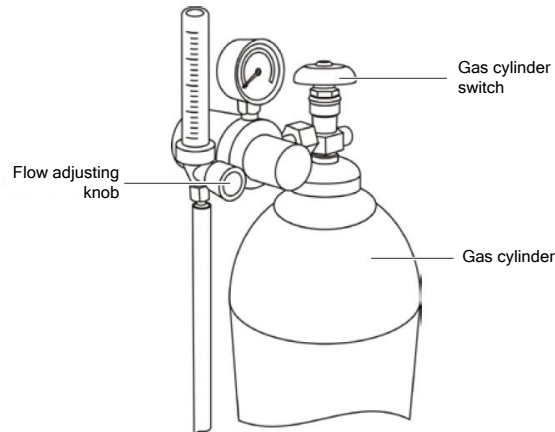


Figure 2-7 Position of the flow adjusting knob

## 2.6.5 Wire Inching

Stretch the welding torch and hold down the wire inching button on the remote control box of the wire feeder (see Figure 2-8). The LED indicator turns on. When the welding wire is extended beyond the tip by about 10 mm, release the button to stop wire inching. The LED indicator turns off. When you hold down the button, you can use the current adjusting knob on the remote control box of the wire feeder to change the wire inching speed.

### Usage Notes

1. The wire inching roll must match the wire diameter and does not depend on the welding wire type.
2. Use the wire inching pressure lever to adjust the pressure of the wire inching roll according to the wire diameter. For details, see the wire feeder user manual.
3. If you use the flux-cored wire, use the lever to reduce the pressure to

slightly lower than that for the solid wire.

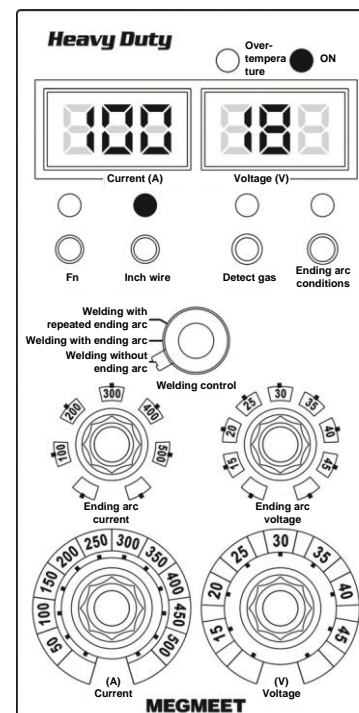



Figure 2-8 Position of the wire inching button

 Safety Warning

1. Do not check at a short distance whether the wire has been extended through the tip; otherwise, the wire may injure your eyes or skin.
2. When you use a welding torch with a resin wire inching tube to manually inch wire, stretch the power cable of the welding torch and set the wire inching speed (current) to less than half of the rated value, so as to prevent the wire from piercing the wire inching tube and welding torch power cable in case that the welding torch power cable is excessively bent.
3. Upon finding a crack in the welding torch power cable or wire inching tube, replace the damaged cable or tube.

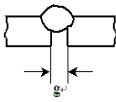
### 2.6.6 Welding Conditions

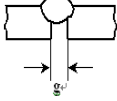
Under the standard welding conditions, the welding parameters in the following tables are applicable, including the common parameters for CO<sub>2</sub> welding (solid wire), MAG welding (solid wire; Ar 80% + CO<sub>2</sub> 20%), and flux-cored wire. In actual welding projects, modify the parameters according to the workpiece materials, workpiece shapes, and welding positions. If high welding quality is required, you are recommended to determine the optimal welding process parameters through tests. The wire diameter adopted for the actual welder shall prevail.

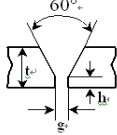
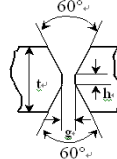
 Note

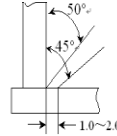
According to the standard welding conditions, the welding power cable on the wire feeder side must be 3 meters in length and 70 mm<sup>2</sup> in cross-sectional area, while the welding power cable on the workpiece side must be 1.8 meters in length and 70 mm<sup>2</sup> in cross-sectional area.

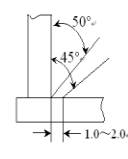
#### CO<sub>2</sub> welding (solid wire)

Type	Plate Thickness (mm)	Wire Diameter Φ (mm)	Root Gap g (mm)	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Tip-Workpiece Distance (mm)	Gas Flow (L/min)
I-shaped butt welding (Low speed) 	0.8	0.8	0	60 - 70	16 - 16.5	50 - 60	10	10
	1.0	0.8	0	75 - 85	17 - 17.5	50 - 60	10	10 - 15
	1.2	0.8	0	80 - 90	17 - 18	50 - 60	10	10 - 15
	1.6	0.8	0	95 - 105	18 - 19	45 - 50	10	10 - 15
			1.0	120 - 130	19 - 20	50 - 60	10	10 - 20
	2.0	1.0, 1.2	0 - 0.5	110 - 120	19 - 19.5	45 - 50	10	10 - 15
	2.3	1.0, 1.2	0.5 - 1.0	120 - 130	19.5 - 20	45 - 50	10	10 - 15
			1.2	130 - 150	20 - 21	45 - 55	10	10 - 20
	3.2	1.0, 1.2	1.0 - 1.2	140 - 150	20 - 21	45 - 50	10 - 15	10 - 15
			1.2	130 - 150	20 - 23	30 - 40	10 - 15	10 - 20
	4.5	1.0, 1.2	1.0 - 1.2	170 - 185	22 - 23	45 - 50	15	15
			1.2	150 - 180	21 - 23	30 - 35	10 - 15	10 - 20
	6	1.2	1.2 - 1.5	230 - 260	24 - 26	45 - 50	15	15 - 20
			1.2 - 1.5	200 - 230	24 - 25	30 - 35	10 - 15	10 - 20
8	1.2	0 - 1.2	300 - 350	30 - 35	30 - 40	15 - 20	10 - 20	
		1.6	380 - 420	37 - 38	40 - 50	15 - 20	10 - 20	
9	1.2	1.2 - 1.5	320 - 340	32 - 34	45 - 50	15	15 - 20	
12	1.6	0 - 1.2	420 - 480	38 - 41	50 - 60	20 - 25	10 - 20	

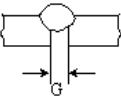
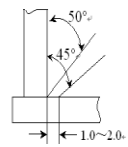
Type	Plate Thickness (mm)	Wire Diameter Φ (mm)	Root Gap g (mm)	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Tip-Workpiece Distance (mm)	Gas Flow (L/min)
I-shaped butt welding (High speed) 	0.8	0.8	0	85 - 95	16 - 17	115 - 125	10	15
	1.0	0.8	0	95 - 105	16 - 18	115 - 125	10	15
	1.2	0.8	0	105 - 115	17 - 19	115 - 125	10	15
	1.6	1.0, 1.2	0	155 - 165	18 - 20	115 - 125	10	15
	2.0	1.0, 1.2	0	170 - 190	19 - 21	75 - 85	15	15
	2.3	1.0, 1.2	0	190 - 210	21 - 23	95 - 105	15	20
	3.2	1.2	0	230 - 250	24 - 26	95 - 105	15	20

Type	Plate Thickness (mm)	Wire Diameter Φ (mm)	Root Gap g (mm)	Root Face h (mm)	Layer and Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Gas Flow (L/min)
V-shaped butt welding 	12	1.2	0 - 0.5	4 - 6	External 1	300 - 350	32 - 35	30 - 40
		Internal 1			300 - 350	32 - 35	45 - 50	
		External 1			380 - 420	36 - 39	35 - 40	
		Internal 1			380 - 420	36 - 39	45 - 50	
	16	1.2	0 - 0.5	4 - 6	External 1	300 - 350	32 - 35	25 - 30
		Internal 1			300 - 350	32 - 35	30 - 35	
		External 1			380 - 420	36 - 39	30 - 35	
		Internal 1			380 - 420	36 - 39	35 - 40	
X-shaped butt welding 	16	1.2	0	4 - 6	External 1	300 - 350	32 - 35	30 - 35
		Internal 1			300 - 350	32 - 35	30 - 35	
		External 1			380 - 420	36 - 39	35 - 40	
		Internal 1			380 - 420	36 - 39	35 - 40	
	19	1.6	0	5 - 7	External 1	400 - 450	36 - 42	25 - 30
		Internal 1			400 - 450	36 - 42	25 - 30	
		External 1			400 - 420	36 - 39	45 - 50	
		Internal 2			400 - 420	36 - 39	35 - 40	
	25	1.6	0	5 - 7	External 1	400 - 420	36 - 39	40 - 45
		Internal 2			420 - 450	39 - 42	30 - 35	

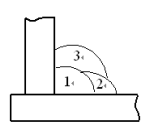
Type	Plate Thickness (mm)	Wire Diameter Φ (mm)	Leg Size (mm)	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Tip-Welding Material Distance (mm)	Gas Flow (L/min)	Welding Angle
T-shaped horizontal fillet welding (Low speed) 	1.0	0.8	2.5 - 3	70 - 80	17 - 18	50 - 60	10	10 - 15	45°
	1.2	1.0	3 - 3.5	85 - 90	18 - 19	50 - 60	10	10 - 15	45°
	1.6	1.0,1.2	3 - 3.5	100 - 110	18 - 19.5	50 - 60	10	10 - 15	45°
	2.0	1.0,1.2	3 - 3.5	115 - 125	19.5 - 20	50 - 60	10	10 - 15	45°
	2.3	1.0,1.2	3 - 3.5	130 - 140	19.5 - 21	50 - 60	10	10 - 15	45°
	3.2	1.0,1.2	3.5 - 4	150 - 170	21 - 22	45 - 50	15	15 - 20	45°
	4.5	1.0,1.2	4.5 - 5	180 - 220	21 - 23	40 - 45	15	15 - 20	45°
		1.2	5 - 5.5	200 - 250	24 - 26	40 - 50	10 - 15	10 - 20	45°
	6	1.2	5 - 5.5	230 - 260	25 - 27	40 - 45	20	15 - 20	45°
			6	220 - 250	25 - 27	35 - 45	13 - 18	10 - 20	45°
			4 - 4.5	270 - 300	28 - 31	60 - 70	13 - 18	10 - 20	45°
	8, 9	1.2,1.6	6 - 7	270 - 380	29 - 35	40 - 45	25	20 - 25	50°
8	1.2	5 - 6	270 - 300	28 - 31	55 - 60	13 - 18	10 - 20	45°	
	1.2	7 - 8	260 - 300	26 - 32	25 - 35	15 - 20	10 - 20	50°	

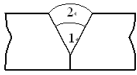

Type	Plate Thickness (mm)	Wire Diameter Φ (mm)	Leg Size (mm)	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Tip-Welding Material Distance (mm)	Gas Flow (L/min)	Welding Angle
	12	1.6	6.5 - 7	300 - 330	30 - 34	30 - 35	15 - 20	10 - 20	50°
		1.2,1.6	7 - 8	270 - 380	27 - 35	27 - 40	20 - 25	20 - 25	50°
		1.2	7 - 8	260 - 300	26 - 32	25 - 35	15 - 20	10 - 20	50°
		1.6	6.5 - 7	300 - 330	30 - 34	30 - 35	15 - 20	10 - 20	50°
T-shaped horizontal fillet welding (High speed) 	1.0	0.8	2 - 2.5	130 - 150	19 - 20	140 - 145	10	15	45°
	1.2	1.0	3	130 - 150	19 - 20	105 - 115	10	15	45°
	1.6	1.0,1.2	3	170 - 190	22 - 23	105 - 115	10	15 - 20	45°
	2.0	1.2	3.5	200 - 220	23 - 25	105 - 115	15	20	45°
	2.3	1.2	3.5	220 - 240	24 - 26	95 - 105	20	25	45°
	3.2	1.2	3.5	250 - 270	26 - 28	95 - 105	20	25	45°
	4.5	1.2	4.5	270 - 290	29 - 31	75 - 85	20	25	50°
6	1.2	5.5	290 - 310	32 - 34	65 - 75	25	25	50°	

MAG welding (solid wire; Ar 80% + CO<sub>2</sub> 20%)

Type	Plate Thickness (mm)	Wire Diameter Φ (mm)	Root Gap (mm)	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Tip-Welding Material Distance (mm)	Gas Flow (L/min)
I-shaped butt welding 	1.2	0.8	0	60 - 70	15 - 16	30 - 50	10	10 - 15
	1.6	0.8	0	100 - 110	16 - 17	40 - 60	10	10 - 15
	3.2	0.8, 1.2	1.0 - 1.5	120 - 140	16 - 17	25 - 30	15	10 - 15
	4.0	1.0, 1.2	1.5 - 2.5	150 - 160	17 - 18	20 - 30	15	10 - 15
T-shaped horizontal fillet welding 	0.6	0.8	2	70 - 80	17 - 18	50 - 60	10	10 - 15
	1.0	1.0	2 - 2.5	85 - 90	18 - 19	50 - 60	10	10 - 15
	1.6	1.0, 1.2	3	100 - 110	18 - 19.5	50 - 60	10	10 - 15
	2.4	1.0, 1.2	3.5	115 - 125	19.5 - 20	50 - 60	10	10 - 15
3.2	1.0, 1.2	4	130 - 140	19.5 - 21	50 - 60	15	10 - 15	

Common parameters for the flux-cored wire

Flux-Cored Wire Type	Welding Position	Wire Diameter Φ (mm)	Leg Size (mm)	Number of Beads	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Weaving
Metal 		1.2	4	1	240 - 260	26 - 28	48 - 53	No
		1.4		1	320 - 340	28 - 30	95 - 105	No
		1.6		1	340 - 360	30 - 32	100 - 110	No
		1.2	5	1	260 - 280	28 - 30	48 - 53	No
		1.4		1	330 - 340	29 - 31	85 - 95	No
		1.6		1	360 - 380	32 - 34	85 - 95	No
		1.2	6	1	260 - 280	27 - 29	40 - 45	No
		1.4		1	320 - 340	30 - 32	75 - 85	No
		1.6		1	370 - 390	33 - 35	75 - 85	No
		1.2	7	1	270 - 290	29 - 31	38 - 43	No
		1.4		1	340 - 360	31 - 33	48 - 53	No
		1.6		1	370 - 390	33 - 35	60 - 70	No
		1.4	9	1	260 - 280	27 - 29	22 - 26	Yes
		1.4		1	320 - 340	30 - 32	38 - 42	No

Flux-Cored Wire Type	Welding Position	Wire Diameter $\Phi$ (mm)	Leg Size (mm)	Number of Beads	Welding Current (A)	Welding Voltage (V)	Welding Speed (cm/min)	Weaving	
		1.2		2	320 - 340	30 - 32	40 - 44	No	
				3	320 - 340	29 - 31	48 - 52	No	
			9	1	260 - 280	27 - 29	23 - 27	No	
			12	1	290 - 310	30 - 32	33 - 37	No	
				2	290 - 310	30 - 32	27 - 31	Yes	
Titania		1.2	4	-	210 - 230	26 - 28	68 - 72	-	
			6	-	260 - 280	28 - 30	48 - 52	-	
			8	-	290 - 310	29 - 31	33 - 37	-	
		1.4	4	-	250 - 270	27 - 29	68 - 72	-	
			6	-	310 - 330	30 - 32	48 - 52	-	
			8	-	340 - 360	32 - 34	33 - 37	-	
		Vertical angle welding	1.2	4	-	170 - 190	21 - 23	48 - 52	-
				6	-	190 - 210	22 - 24	48 - 52	-
				8	-	210 - 230	22 - 24	43 - 47	-

The voltages in the preceding table are reference values applicable under the standard conditions. They vary with the voltage drops of the output power cable under non-standard conditions. The voltage drop ( $V_f$ ) is related to the cross-sectional area ( $S$ ), length ( $L$ ), and welding current ( $I_o$ ) of the power cable, and the relationship is  $V_f = (\rho \times L/S) \times I_o$ , where  $\rho$  indicates the copper resistivity. For example, if the cross-sectional area is 70 mm<sup>2</sup> and the welding current is 300A, the voltage drop is 2.7 V. The welding voltage must be calculated by adding the voltage drop to the reference voltage.

Table 2-6 describes the issues that occur when the welding conditions are abnormal.

Table 2-4 Abnormal welding conditions

Abnormal Welding Condition	Result
Wire extension is excessive.	The arc is lengthened.
	The bead is widened.
	The protection performance of the gas decreases.
Wire extension is inadequate.	The arc is shortened.
	Spatters occur.
The arc voltage is excessively high.	The arc is lengthened.
	The bead is widened.
	The fusion depth and reinforcement are reduced.
The arc voltage is excessively low.	Wire sticking and spatters occur.
	The bead is narrowed.
	The fusion depth and reinforcement are reduced.
The welding current is excessively high.	The bead is widened.
	The fusion depth and reinforcement are increased.
The welding speed is excessively high.	The bead is narrowed.
	The fusion depth and reinforcement are reduced.
Wire extension: distance between the tip and the workpiece to be welded	

## 2.7 Post-welding Tasks

Turn off the main switch of the gas cylinder and then turn off the power switch.

Turn off the power supply of the welder and then the power supply of the distribution box.

---

 Note

Turn off the power supply of the welder 3 to 5 minutes after welding is complete. This facilitates internal cooling of the welder.

---

# Chapter 3 Welder Operation Description

## 3.1 Welder Control Panel Structure

### 3.1.1 Front Control Panel

Figure 3-1 shows the front control panel of the welder and the buttons on the control panel.

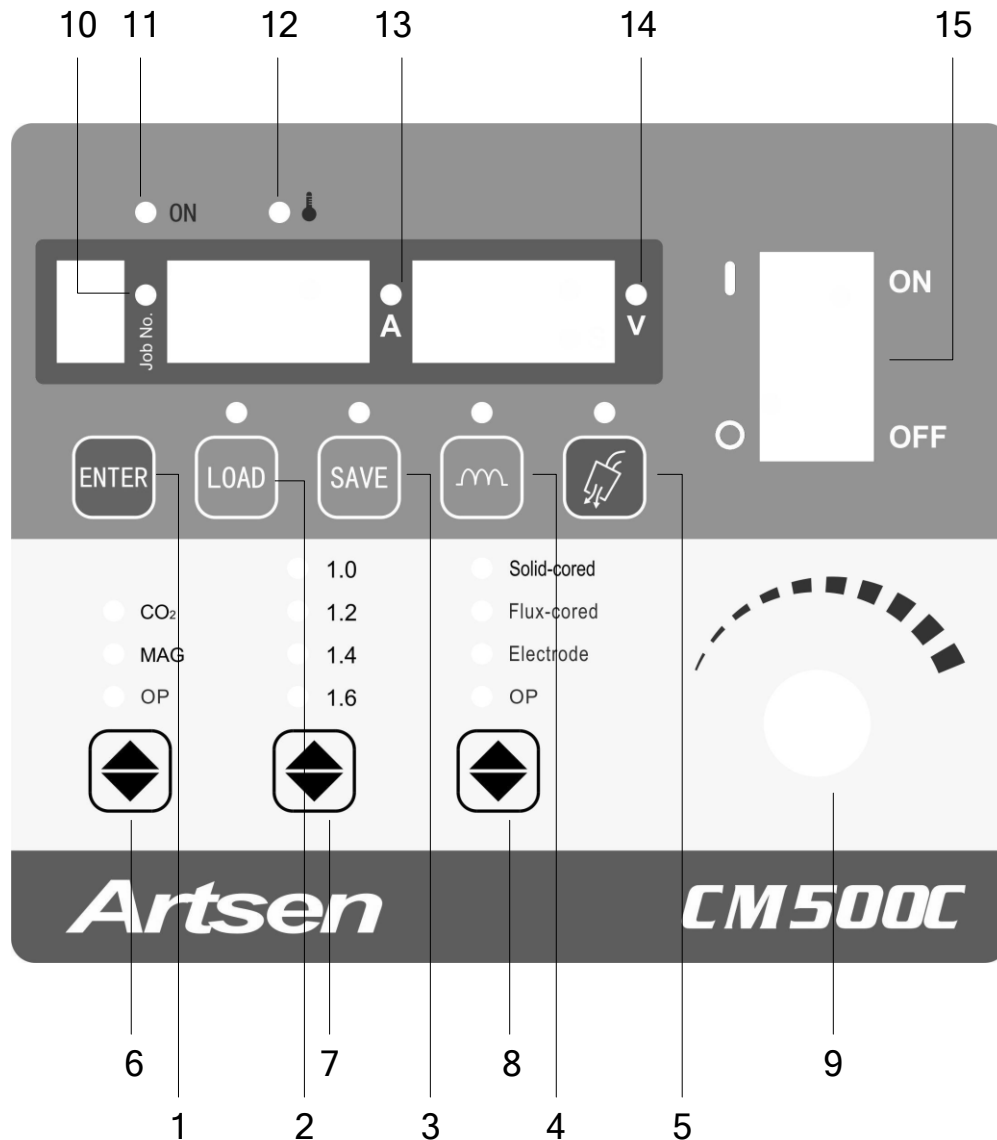







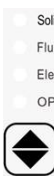









Figure 3-1 Front control panel

SN	Name	Function
1	ENTER 	1. Confirms loading of and saves welding parameter settings. 2. Implements common control panel locking.
2	LOAD 	1. Loads saved welding parameters. 2. Implements password-based locking.
3	SAVE 	1. Saves selected welding parameters. 2. Sets password when the locking function is used.

SN	Name	Function
4	Arc dynamic 	Sets the hardness of arc.
5	Detect gas 	Detects gas flow.
6	Gas type 	Selects the type of the shielding gas. MAG indicates the mixed gas consisting of 80% Ar and 20% CO <sub>2</sub> .
7	Wire diameter 	Selects the diameter of the welding wire. If <b>Wire type</b> is set to <b>Solid-cored</b> , the system allows only the wire diameters 1.0 mm, 1.2 mm and 1.6 mm. If <b>Wire type</b> is set to <b>Flux-cored wire</b> , the system allows only wire diameters 1.2 mm, 1.4 mm, and 1.6 mm.
8	Wire type 	Selects the type of the welding wire. If <b>Gas type</b> is set to <b>MAG</b> , the system disables the <b>Flux-cored wire</b> option. If <b>Wire type</b> is set to <b>Electrode</b> , the system enters the manual arc welding mode.
9	Value adjusting knob 	Manually adjusts the current for manual arc welding, arc dynamic for gas-shielded welding, and password for locking parameters, and the current and voltage within specified ranges.
10	Job No. indicator 	When the indicator turns on, the data saved to the channel or the number of the channel is displayed.
11	Power indicator 	Indicates whether the welder is connected to a power supply. If the welder is connected to a power supply, the indicator turns on. Otherwise, it turns off.
12	Over-temperature indicator 	Indicates whether the welder is faulty. If the welder is faulty, the indicator turns on. Otherwise, it turns off.
13	Current indicator 	Indicates whether a value displayed on the screen is a current value. If the indicator turns on, the value is a current value.
14	Voltage indicator 	Indicates whether a value displayed on the screen is a voltage value. If the indicator turns on, the value is a voltage value.
15	Power switch 	Indicates whether the welder is powered on. If the switch is turned to the <b>ON</b> position, the welder is powered on. If the switch is turned to the <b>OFF</b> position, the welder is powered off.

### 3.1.2 Remote Control Box of the Wire Feeder

Figure 3-2 shows the control panel of the remote control box of the wire feeder.



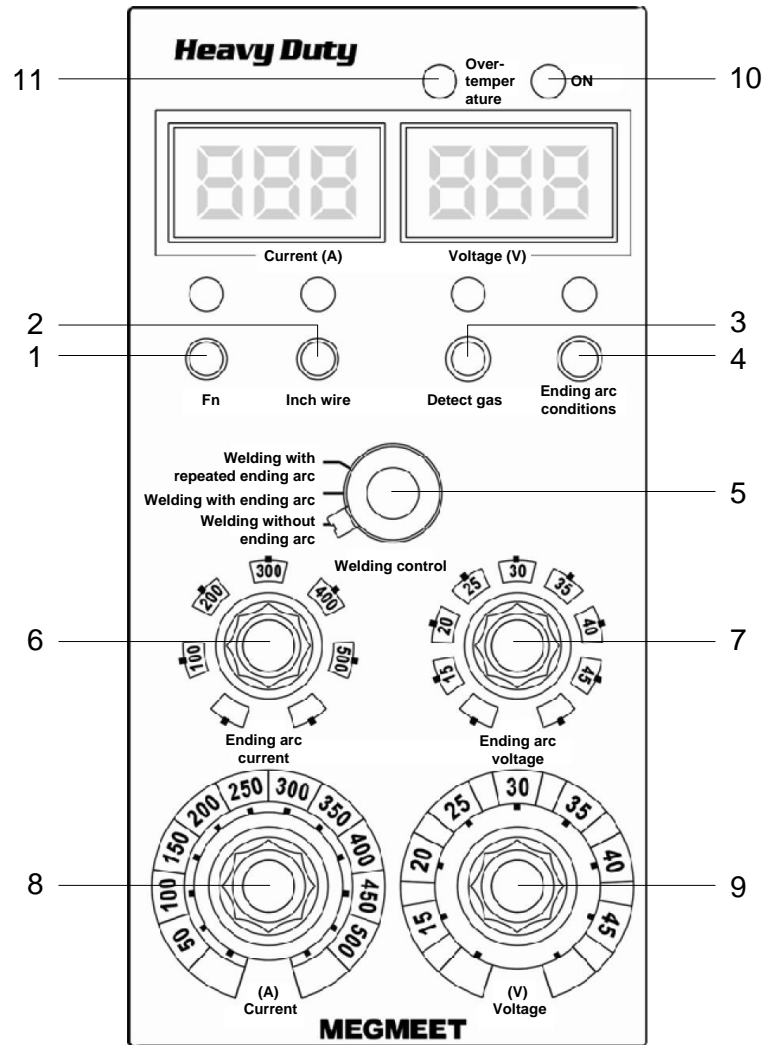


Figure 3-2 Remote control box of the wire feeder

SN	Name	Function
1	Function button	Reserved for customization.
2	Inch wire button	Quickly inches wire without gas flow, reducing gas usage.
3	Detect gas button	Detects gas flow.
4	Ending arc conditions button	Switches between the ending arc current and voltage and the welding current and voltage.
5	Welding control knob	Selects welding modes.
6	Ending arc current adjusting knob	Adjusts the ending arc current in the mode of welding with ending arc and the mode of welding with repeated ending arc.
7	Ending arc voltage adjusting knob	Adjusts the ending arc voltage in the mode of welding with ending arc and the mode of welding with repeated ending arc.
8	Current adjusting knob	Adjusts the welding current.
9	Voltage adjusting knob	Adjusts the welding voltage.
10	Power indicator	Indicates whether the wire feeder is connected to a power supply. If the wire feeder is connected to a power supply, the indicator turns on. Otherwise, it turns off.

SN	Name	Function
11	Over-temperature indicator	Indicates whether the wire feeder is faulty. If the wire feeder is faulty, the indicator turns on. Otherwise, it turns off.

### 3.2 Buttons and Knobs

The buttons can be pressed or hold down. The hold-down operation on a button is responded only after the button is held down for three seconds.

Rotating a knob counter-clockwise reduces a value, while rotating a knob clockwise increases a value. Figure 3-3 shows the positions of buttons and knobs.

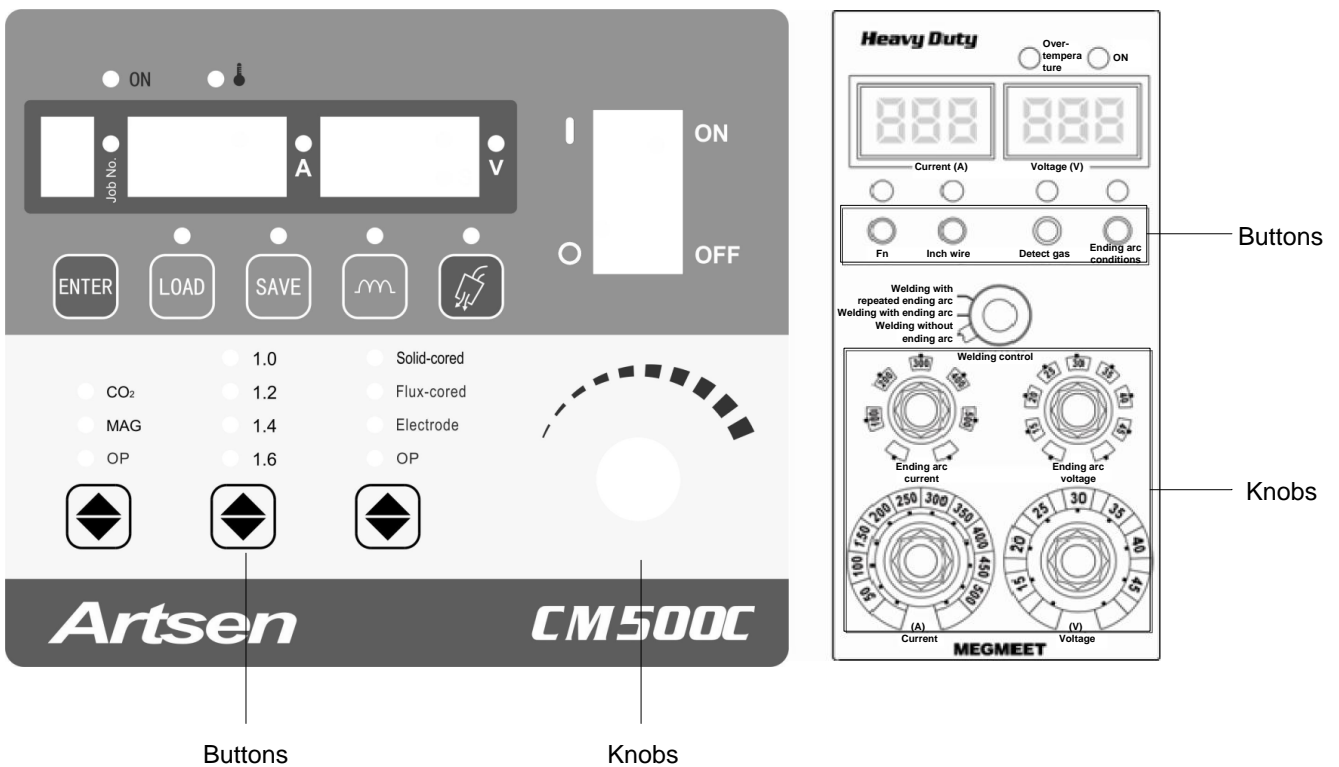


Figure 3-3 Positions of buttons and knobs

### 3.3 Screens and LED Indicators

Figure 3-4 shows the screens and LED indicators on the control panels of the welder and wire feeder.

**Note**

If a screen displays - - - - -, it indicates that no parameter is set and does not indicate a welder fault.

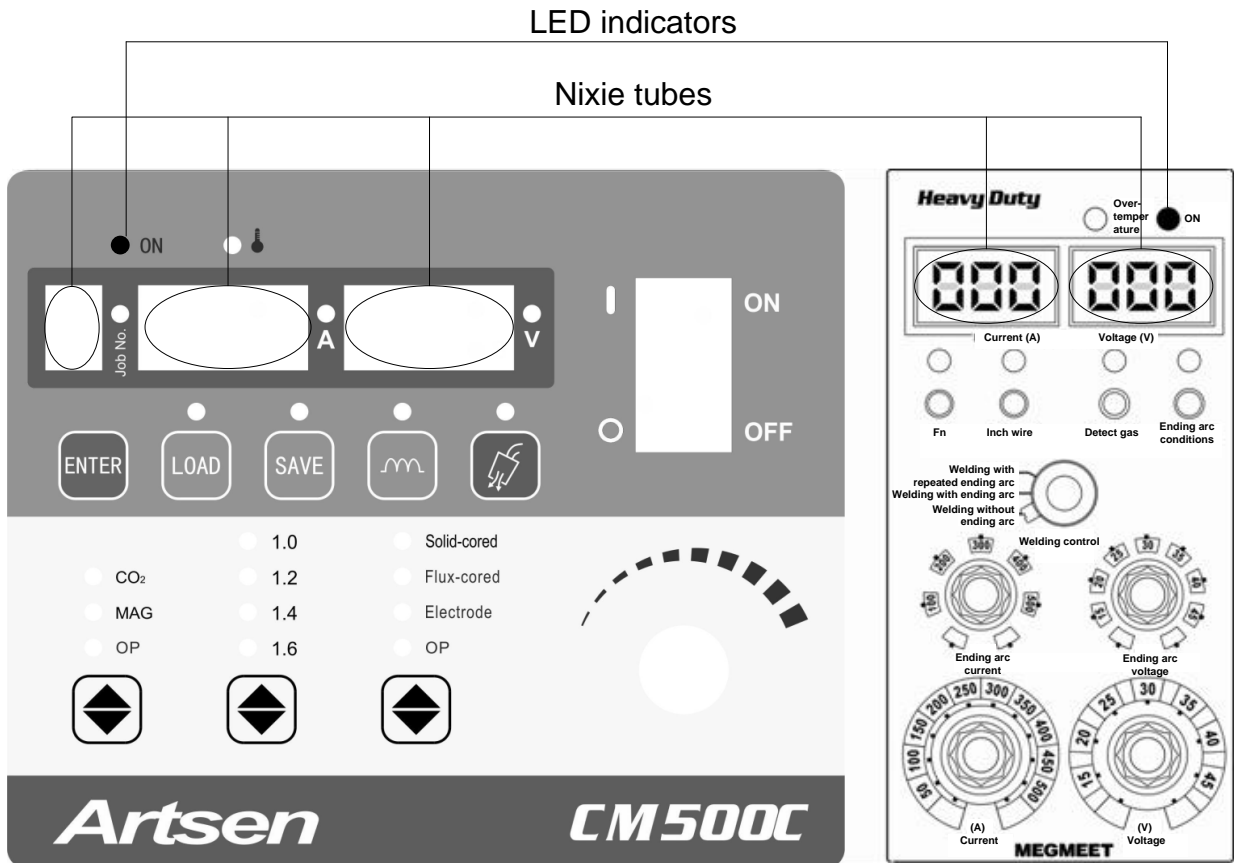


Figure 3-4 Positions of screens and LED indicators

### Control panel of the welder

The left screen displays the numbers of saved or loaded channels, the locking state, and password SNs. When the saving or loading function is used, the **Job No.** indicator turns on and the left screen displays the number of the active channel which ranges from 0 to 9. When the locking function is used, the left screen displays **L**, indicating common locking and password change. Meanwhile, the **Job No.** indicator flashes, indicating parameter value range locking.

The middle screen displays current values, codes, and related data of the internal menu. When the current indicator **A** turns on, the value displayed on the screen is a current value. In locking mode or when a fault occurs, it displays a corresponding code.

The right screen displays voltage values, arc dynamic, codes, and related data of the internal menu. When the voltage indicator **V** turns on, it displays a voltage value. When the arc dynamic is adjusted, it displays an arc dynamic value (adjustable within the range of -9 to +9.) In locking mode or when a fault occurs, it displays a corresponding code.

### Control panel of the wire feeder

The left screen is used to display the actual welding current, preset welding current, preset ending arc current, and primary error codes.

The right screen is used to display the actual welding voltage, preset welding voltage, preset ending arc voltage, and secondary error codes.

## 3.4 Control Panel Functions

### 3.4.1 Gas Shielded Arc Welding

Set **Gas type**, **Wire type**, and **Wire diameter** according to the welding process requirements. Table 3-1 lists the allowed settings of this welder.

Table 3-1 Parameter settings for gas shielded arc welding

Gas Type	Wire Type	Artsen CM500C	
		Wire diameter (mm)	
CO <sub>2</sub>	Solid wire	1.0	
		1.2	
		1.6	
	Flux-cored wire	1.2	
		1.4	
		1.6	
MAG	Solid wire	1.0	
		1.2	
		1.6	

### 3.4.2 Welding Without Ending Arc

You can perform welding directly in the mode of welding without ending arc.

Two steps must be performed, including turning on and turning off the welding torch.

The procedure is as follows:

1. Switch the **Welding control** knob on the control panel of the wire feeder to the mode of welding without ending arc.
2. Use the current and voltage adjusting knobs on the control panel of the wire feeder to set the welding current and voltage.
3. Perform welding after the parameters are set. See Figure 3-5.

When the switch of the welding torch is turned to **ON**, an arc is generated. When the switch of the welding torch is

turned to **OFF**, welding stops. See Figure 3-6.

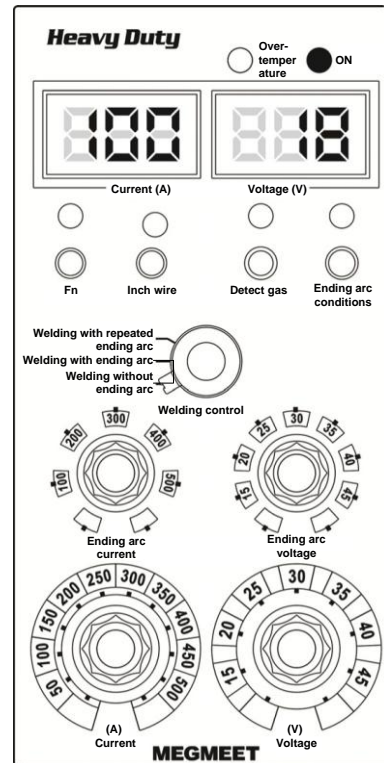


Figure 3-5 Selecting the mode of welding without ending arc

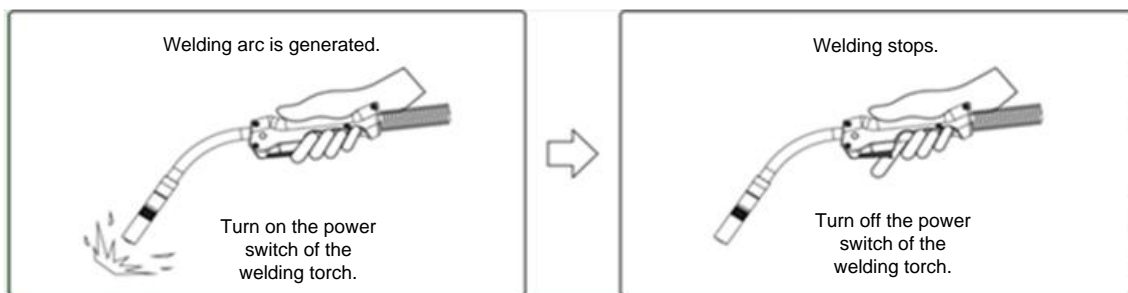


Figure 3-6 Schematic diagram of welding with ending arc

Figure 3-7 shows the welding logic.

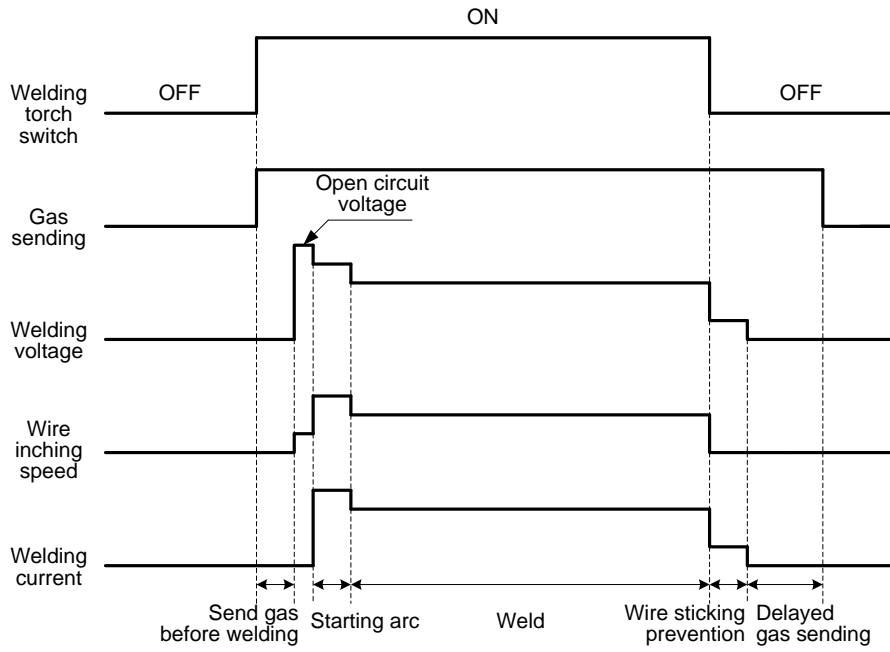


Figure 3-7 Logic for welding without ending arc

### 3.4.3 Welding with Ending Arc

After welding, you can use ending arc to fill up the craters and arc holes created during welding. Four steps must be performed, including turning on and turning off the welding torch.

The procedure is as follows:

1. Switch the **Welding control** knob on the control panel of the wire feeder to the mode of welding with ending arc.
2. Use the current and voltage adjusting knobs on the control panel of the wire feeder to set the welding current and voltage.
3. Press the **Ending arc conditions** button and the corresponding indicator turns on. Use the ending arc current adjusting knob and ending arc voltage adjusting knob to set the ending arc current and ending arc voltage.
4. Figure 3-8 shows the control panel where the parameter settings are set.

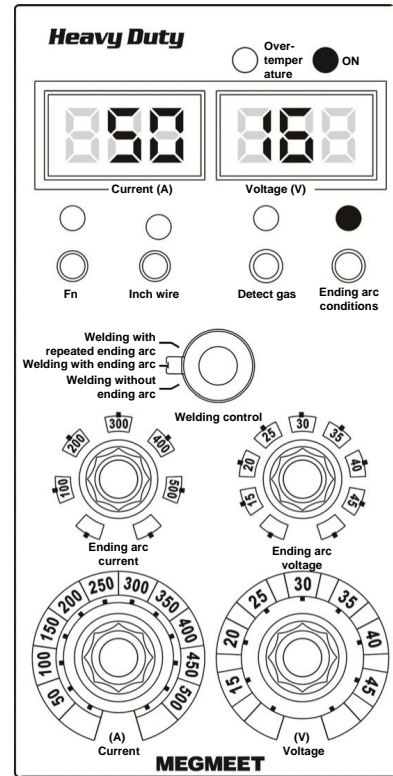


Figure 3-8 Selecting the mode of welding with ending arc

When the switch of the welding torch is turned to **ON**, an arc is generated. When the switch of the welding torch is turned to **OFF**, welding arc generation is locked. When the switch is turned to **ON** again, the ending arc is generated. When the switch is turned to **OFF** again, welding stops. See Figure 3-9.

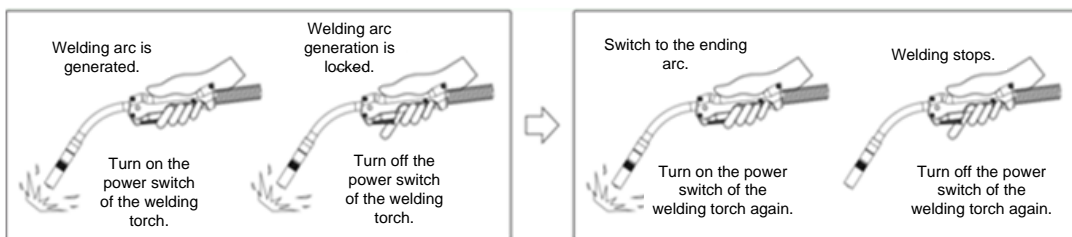


Figure 3-9 Schematic diagram of welding with ending arc

Figure 3-10 shows the welding logic.

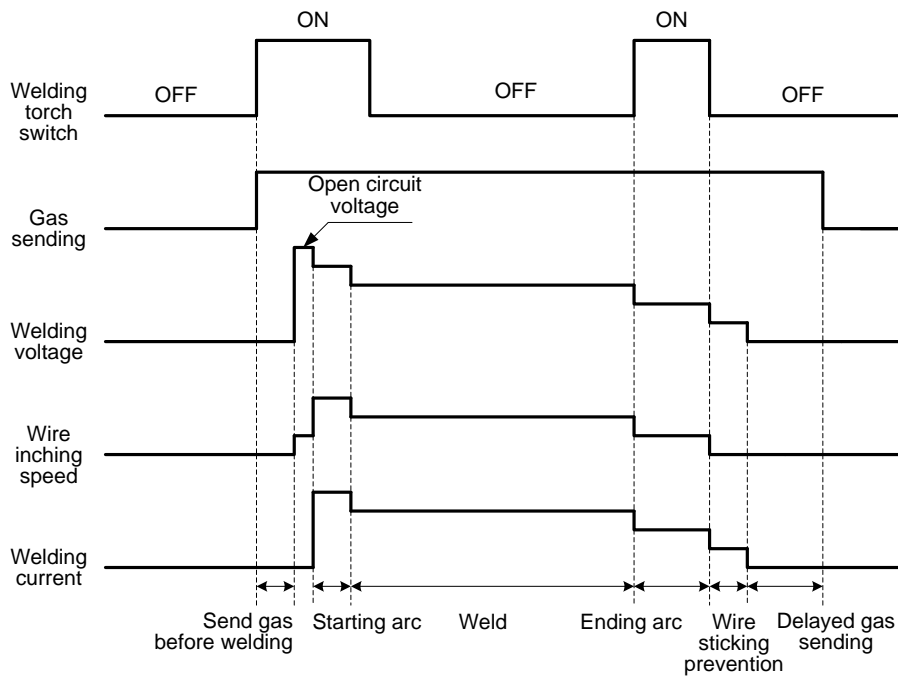


Figure 3-10 Logic for welding with ending arc

### 3.4.4 Welding with Repeated Ending Arc

Welding with repeated ending arc is mainly used to fill up the craters and arc holes created by ending arc. Four steps must be performed, including turning on and turning off the welding torch.

The procedure is as follows:

1. Switch the **Welding control** knob on the control panel of the wire feeder to the mode of welding with repeated ending arc.
2. Use the current and voltage adjusting knobs on the control panel of the wire feeder to set the welding current and voltage.
3. Press the **Ending arc conditions**



button and the corresponding indicator turns on. Use the ending arc current adjusting knob and ending arc voltage adjusting knob to set the ending arc current and ending arc voltage.

4. Figure 3-11 shows the control panel where the parameters have been set.

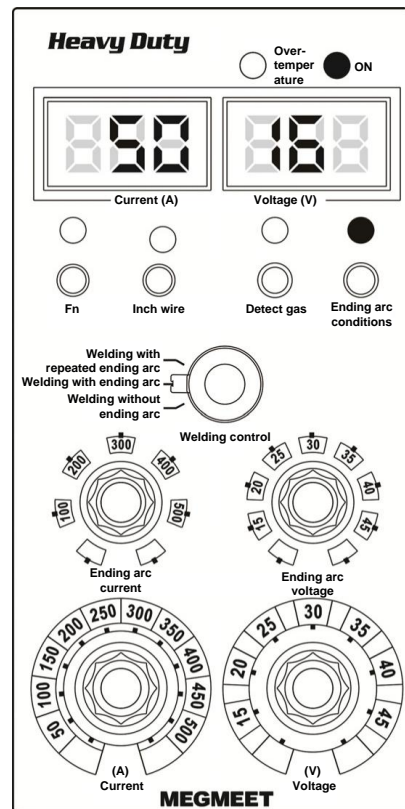


Figure 3-11 Selecting the mode of welding with repeated ending arc



When the switch of the welding torch is turned to **ON** after parameters are set, an arc is generated. When the switch of the welding torch is turned to **OFF**, welding arc generation is locked. When the switch is turned to **ON** again, the ending arc is generated. When the switch is turned to **OFF** again, welding stops. If the welding torch is not used within 2 seconds, welding with repeated ending arc stops. If the power switch is turned on within 2 seconds, welding with repeated ending arc is performed again. This procedure repeats when you repeat the preceding operation. Figure 3-12 shows the welding procedure.

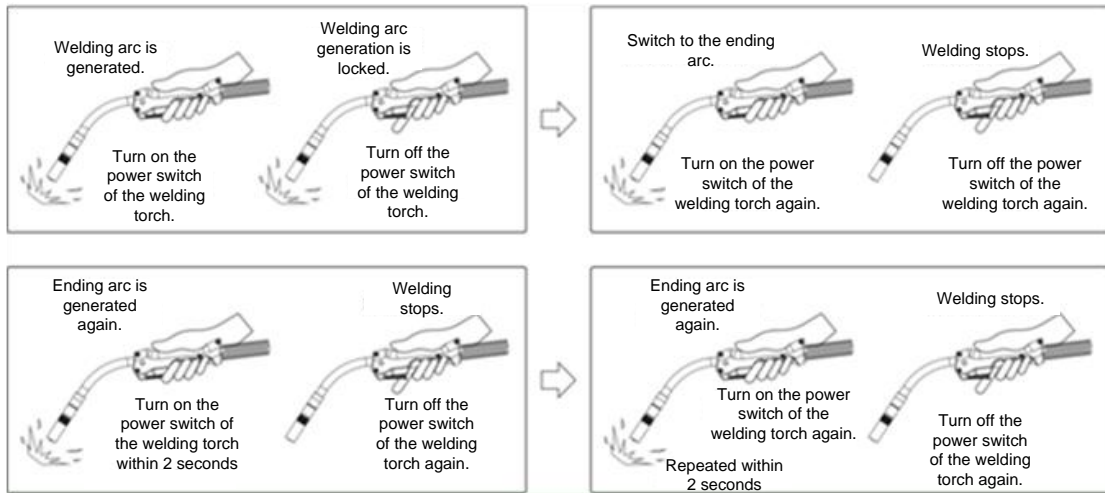


Figure 3-12 Schematic diagram of welding with repeated ending arc

Figure 3-13 shows the welding logic.

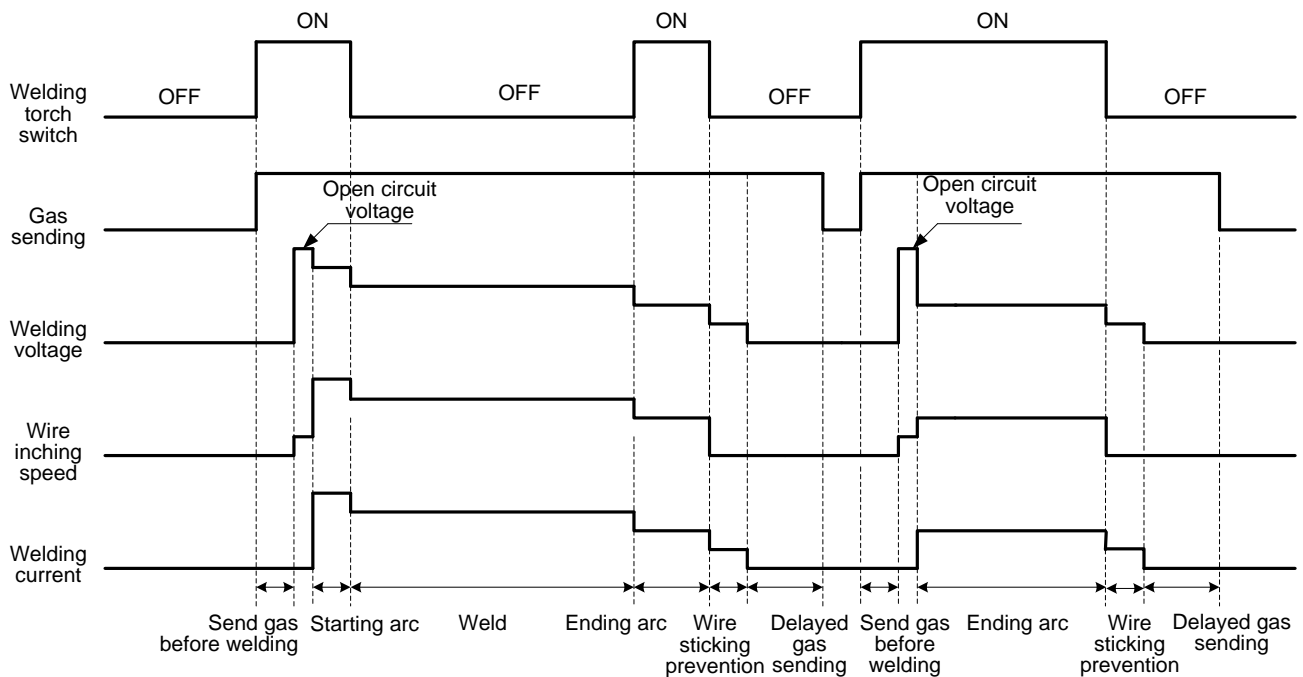



Figure 3-13 Logic for welding with repeated ending arc

### 3.4.5 Arc Dynamic

Arc dynamic is used to set the arc hardness. The procedure is as follows:

1. Press the **Arc dynamic**  button on the control panel of the welder.
2. Use the knob to adjust the arc hardness.

3. Figure 3-14 shows the control panel where the parameters have been set.

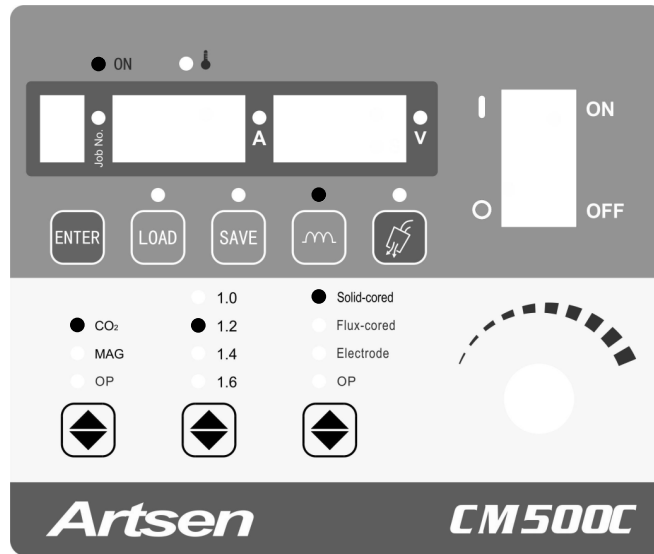


Figure 3-14 Setting arc dynamic

Note:

Arc hardness can be adjust within the range of -9 to +9. Rotating the knob clockwise increases the hardness, while rotating the knob counter-clockwise reduces the hardness. Table 3-2 and Figure 3-15 describe the arc dynamic.

Table 3-2 Arc dynamic

Arc Dynamic	Function
0	It indicates the default arc dynamic and is commonly used.
Hard arc: 0 to 9	The welding seam fusion depth is high and it can easily achieve weld penetration. It is suitable for full welding and high-speed welding. It can ensure arc stability when the power cable is extended.
Soft arc: 0 to -9	The welding seam fusion depth is low and it is not easy to achieve weld penetration. It is suitable for welding thin plates.

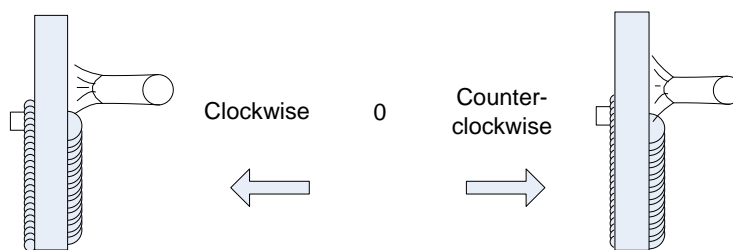





Figure 3-15 Schematic diagram of arc dynamic

### 3.4.6 Detect Gas

It is used to check whether a shielding gas is used. The procedure is as follows:

1. Press the **Detect gas**  button to check for gas flow.
2. Press the **Detect gas**  button again to stop the checking.

- You can use the **Detect gas**  button on the control panel of the welder or wire feeder to set parameters. See Figure 3-16.

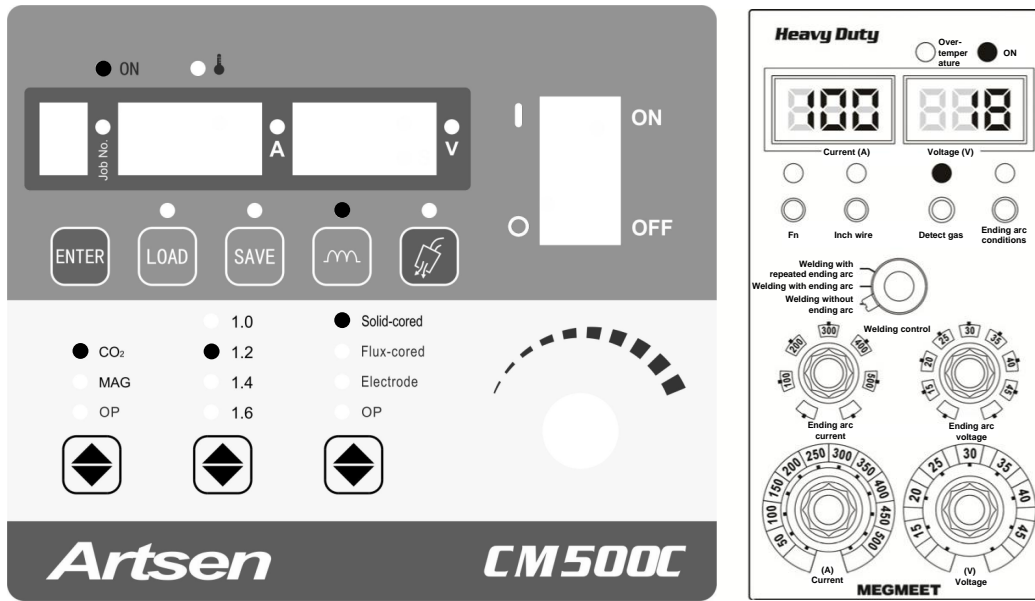





Figure 3-16 Setting gas detection

Note: If you do not manually stop gas detection, it stops automatically after 30 seconds.

### 3.4.7 Wire Inching

The procedure for using the **Wire Inching**

**Inching**  button on the control panel of the wire feeder (see Figure 3-17) to inch wire is as follows:

- Hold down the **Wire Inching**  button on the control panel of the wire feeder to enable the wire feeder to inch wire directly.
- Release the **Wire Inching**  button and wire inching stops.

Note:

The wire inching speed depends on the preset current. A higher preset current results in a higher wire inching speed, while a lower preset current results in a lower wire inching speed.

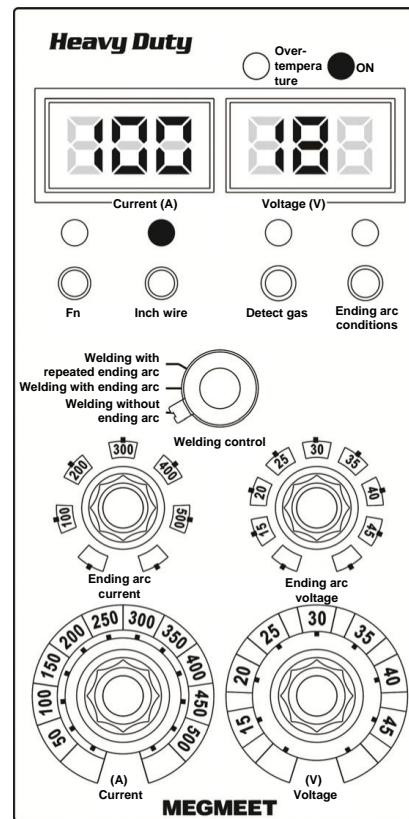







Figure 3-17 Remote control box of the wire feeder

### 3.4.8 SAVE and LOAD

#### SAVE

It is used to save parameter settings. The following provides two methods of saving parameter settings.

The procedure for method 1 is as follows:

1. Press the **SAVE**  button. The **Job No.** indicator turns on and the **SAVE**  indicator flashes.
2. Use the knob to select a channel number (0 - 9).
3. Select the welding parameter settings to be saved. Figure 3-18 shows the control panel where the parameter settings to be saved.
4. Press the **ENTER**  button. Parameter saving begins and the **SAVE**  indicator flashes. After the parameter settings are saved, the **SAVE**  and **Job No.** indicators turn off.

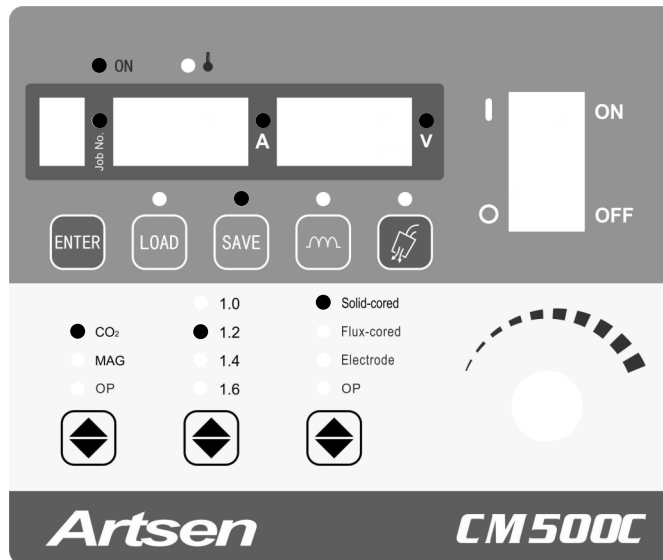








Figure 3-18 Saving parameter settings

The procedure for method 2 is as follows:

1. Select the parameter settings to be saved.
2. Press the **SAVE**  button. The **Job No.** indicator turns on and the **SAVE**  indicator flashes.
3. Use the knob to select a channel number (0 - 9). See Figure 3-18.
4. Press the **ENTER**  button. Parameter saving begins and the **SAVE**  indicator flashes. After the parameter settings are saved, the **SAVE**  and **Job No.** indicators turn off.

Note:





If you want to abort the saving operation during the procedure, press the **SAVE**  button again.

 Note

1. If you set **Wire type** during the procedure, **Electrode** cannot be selected.
2. When a channel is selected, the original data of the channel is overwritten.
3. When the factory settings of the welder are restored, the saved parameter settings are not deleted.

## LOAD

The procedure is as follows:

1. Press the **LOAD**  button. The **Job No.** indicator turns on and the **LOAD**  indicator flashes.
2. Use the knob to select a channel number (0 - 9) and the parameter settings saved to the channel appear.
3. Press the **ENTER**  button to load the parameter settings. The **LOAD**  indicator is steadily on. To view parameter settings, directly press the corresponding function buttons.
4. Figure 3-19 shows the control panel where the parameters have been set.

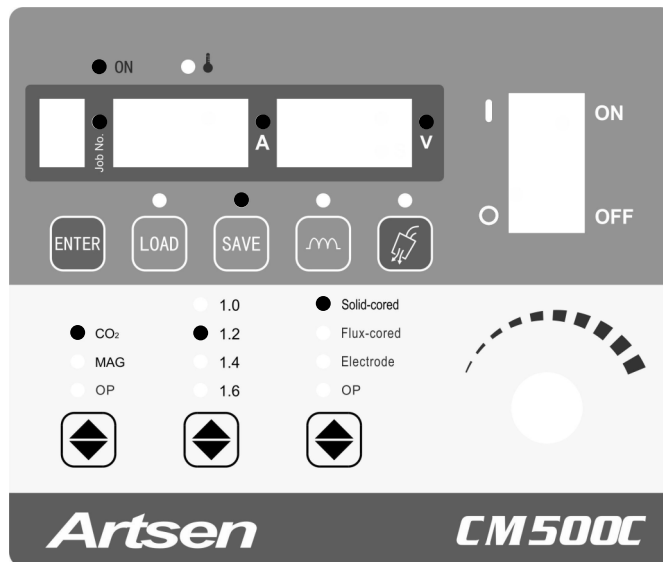




Figure 3-19 Loading parameter settings

Note:

To abort the loading operation during the procedure, press the **LOAD**  button.  
If the selected channel does not store data, the screens display dashes.


### 3.4.9 Lock


 Safety Warning






1. If you set a lock password, it is not deleted when the factory settings of the welder are restored.
2. Keep your password properly. If you forget your lock password, the welder cannot be unlocked. In this case, contact the manufacturer or supplier.

Parameter locking can be implemented with the common lock or password lock.


**Purposes of the locking function:**






1. The common lock only prevents the parameter settings completed on the control panel of the welder from being changed. You can press and hold the **ENTER**  button to unlock.

 Note

In common lock mode, all the buttons and knobs (except the **SAVE** , **LOAD** , **ENTER** , **Inch wire** , and **Detect gas**  buttons) on the control panel of the welder cannot be used.

2. The password lock enables welding administrators to effectively ensure welding regulation compliance. After parameters are locked, they can be adjusted only with preset ranges. You can unlock only with a correct password.

 Note

In password lock mode, the current and voltage adjusting knobs on the wire feeder can be used, and all the buttons and knobs (except the **SAVE** , **LOAD** , **ENTER** , **Inch wire** , and **Detect gas**  buttons) on the control panel of the welder cannot be used.

### Common Lock

The procedure is as follows:


1. Set welding parameters. Press and hold the **ENTER**  button. When the left screen displays **L**, the common lock function is enabled. See Figure 3-20.



Figure 3-20 Enabling the common lock


2. Press and hold the **ENTER**  button. The common lock function is disabled, and the parameters are unlocked. See Figure 3-21.



Figure 3-21 Disabling the common lock

Figure 3-22 shows the procedure for using the common lock.

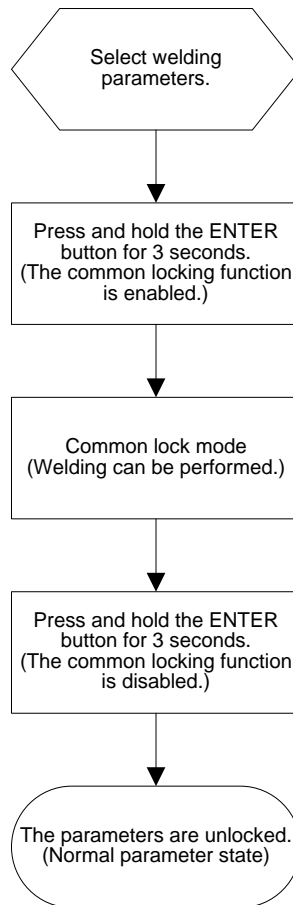







Figure 3-22 Procedure for using the common lock

### Password Lock

The password lock involves password setting and parameter range locking.

#### Note

In password lock mode, the current and voltage adjusting knobs on the wire feeder can be used, and all the buttons and knobs (except the **SAVE** , **LOAD** , **ENTER** , **Inch wire** , and **Detect gas**  buttons) on the control panel of the welder cannot be used.

### Setting a Password

The procedure is as follows:





1. Press and hold the **ENTER**  button. When the left screen displays **L**, the common lock function is enabled. See Figure 3-20.
2. Press and hold the **SAVE**  button. When the first screen displays **o** and the middle and right screens display **-**, use the knob on the control panel to enter the original 6-character password according to the flashing indication on the screens and press the **SAVE**  button. See Figure 3-23.



Figure 3-23 Entering the original password

 Note:

The initial password set before delivery is **000000**. After it is changed, use the new password as the original password.

3. If the original password is entered correctly, the screens display **1 good**. See Figure 3-24. The screens flash and the UI for entering a new password is displayed.



Figure 3-24 Message indicating that the original password is entered correctly

If the original password is not entered correctly, the screens display **0 FAIL**. See Figure 3-25. The UI for entering the original password is displayed.



Figure 3-25 Message indicating that the original password is not entered correctly


4. On the UI for entering a new password, the first screen displays **1**, and the middle and right screens display **-**. See Figure 3-26. Use the knob on the control panel to enter the 6-character new password and press the **SAVE**  button.



Figure 3-26 Entering a new password

5. After the new password is entered correctly, the screens display **2 good**. See Figure 3-27. The UI for confirming the new password is displayed.



Figure 3-27 Message indicating that a new password is entered correctly


6. On the UI for confirming the new password, the first screen displays **2**, and the middle and right screens display **-**. See Figure 3-28. Use the knob on the control panel to enter the 6-character new password and press the **SAVE**  button.





Figure 3-28 Confirming the new password

- If the new password and confirm password entered are the same, the screens display **good**. See Figure 3-29. The common lock function is disabled.



Figure 3-29 Message indicating that a new password is set successfully

- If the new password and confirm password entered are different, the screens display **2 FAIL**. See Figure 3-30. The UI for confirming the new password is displayed. See Figure 3-28. Enter the new password correctly and the screens display **good**. See Figure 3-29.



Figure 3-30 Message indicating that the confirm password is different from the new password

Note:



- If you press and hold the **ENTER**  button on the UI for entering the original password, the UI for entering a new password, or the UI for confirming a new password to enter the common lock UI, the original password is not changed. You can press and hold the **ENTER**  button again to disable the common lock function.
- If the welder is restarted when displaying the UI for entering the original password, the UI for entering a new password, or the UI for confirming a new password, the common lock UI is displayed after restarting is complete and the original password is not changed.

Figure 3-31 shows the procedure for changing a password.

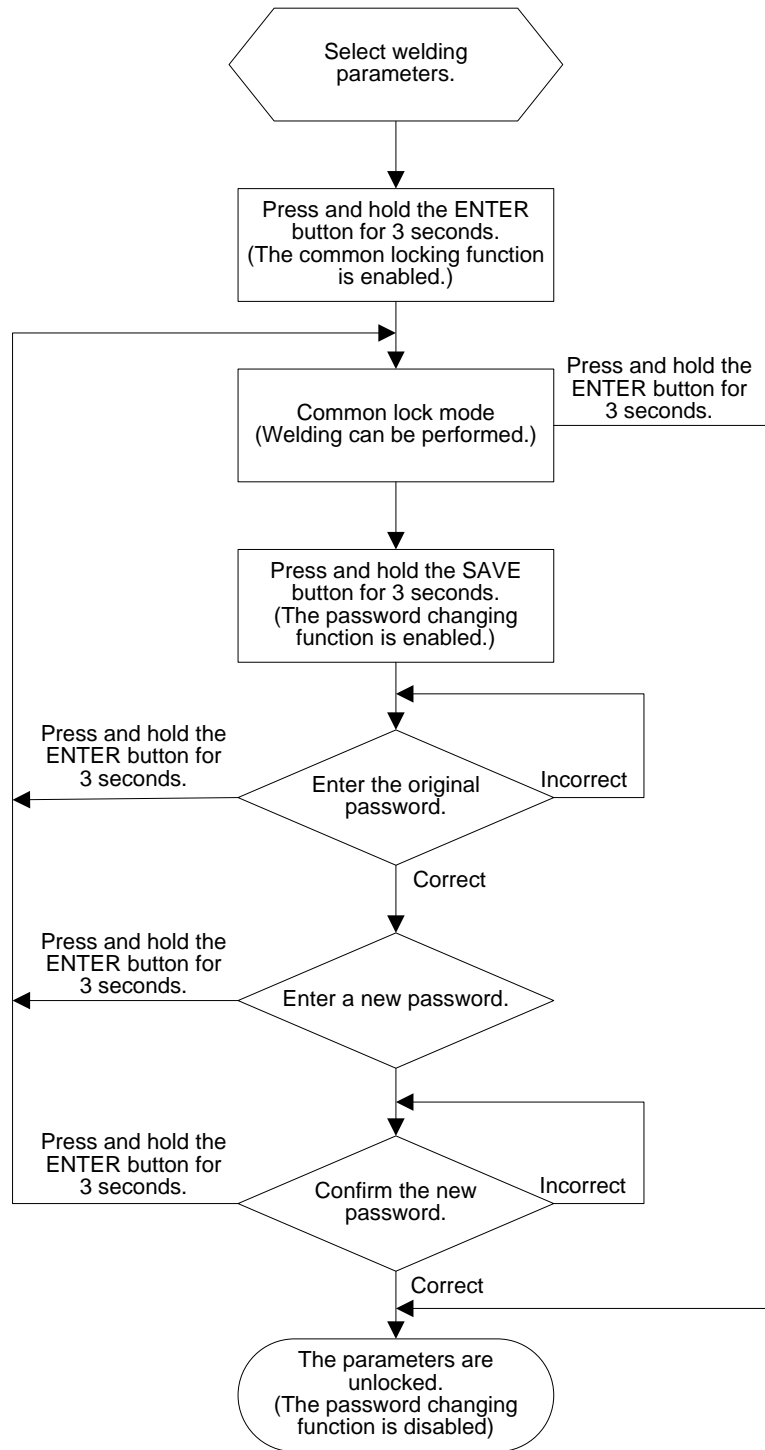





Figure 3-31 Procedure for changing a password

### Locking a Parameter Range

The procedure is as follows:

- a. Enable the parameter range locking function.
  1. Press and hold the **ENTER**  button. When the left screen displays **L**, the common lock function is enabled. See Figure 3-20.
  2. Press and hold the **LOAD**  button. The lock password UI shown in Figure 3-23 is displayed. When the first screen displays **o** and the middle and right screens display **-**,


use the knob on the control panel to enter the 6-character lock password according to the flashing indication on the screens and press the **SAVE**  button.

- If the lock password is entered correctly, the screens display **L good**. See Figure 3-32. The screens flash and the UI for locking the current adjustment range is displayed.



Figure 3-32 Message indicating that the lock password is entered correctly

If the lock password is not entered correctly, the screens display **o FAIL**. See Figure 3-25. The UI for entering the lock password is displayed. See Figure 3-23.

- On the UI for locking the current adjustment range, the middle screen flashes. See Figure 3-33. Use the knob on the control panel of the welder to set the current adjustment range and press the **SAVE**  button. The UI for locking the voltage adjustment range is displayed. The default range is  $\pm 15$  A.

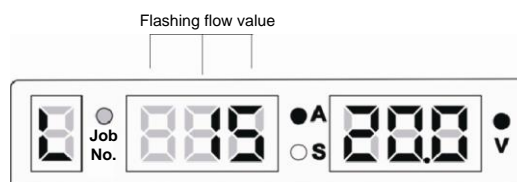


Figure 3-33 UI for locking the current adjustment range


- On the UI for locking the voltage adjustment range, the right screen flashes. See Figure 3-34. Use the knob on the control panel of the welder to set the voltage adjustment range and press the **SAVE**  button. The welder enters the state where the welding parameter adjustment ranges are locked. The default range is  $\pm 1.5$  V.



Figure 3-34 UI for locking the voltage adjustment range

- In the state where parameters are locked, the **Job No.** indicator flashes. See Figure 3-35. The current and voltage adjustment ranges are locked. In the state, you can perform welding and adjust the current and voltage within the specified ranges.

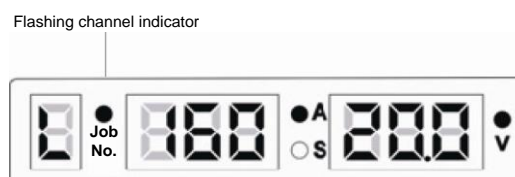




Figure 3-35 UI indicating that welding parameter adjustment ranges are locked

- Disable the parameter range locking function.

1. Press and hold the **ENTER**  button. The UI for entering the lock password is displayed. See Figure 3-23. Use the knob on the control panel of the welder to enter a 6-character lock password, and press the **SAVE**  button.
2. If the lock password is entered correctly, the screens display **good**. See Figure 3-29. The welder enters the state where the welding parameter adjustment ranges are not locked. If the lock password is not entered correctly, the screens display **o FAIL**. See Figure 3-25. The UI for entering the lock password is displayed. See Figure 3-23. Enter the correct lock password and the screens display **good**. See Figure 3-29.

Note:




1. If parameter adjustment range locking is not completed on the welder when it is restarted, the welder enters the common lock state after restarting is complete. If parameter adjustment range locking is complete when it is restarted, the welder enters the state where welding parameter adjustment ranges are locked after restarting is complete.
2. If you press and hold the **ENTER**  button on the UI for entering the lock password, the UI for locking the current adjustment range, or the UI for locking the voltage adjustment range, the common lock UI is displayed. You can press and hold the **ENTER**  button again to disable the common lock function. If you press and hold the **ENTER**  button to unlock welding parameter adjustment ranges, the UI for entering the lock password is displayed. Enter the lock password to disable the function.

Figure 3-36 shows the procedure for locking the welding parameter adjustment ranges.

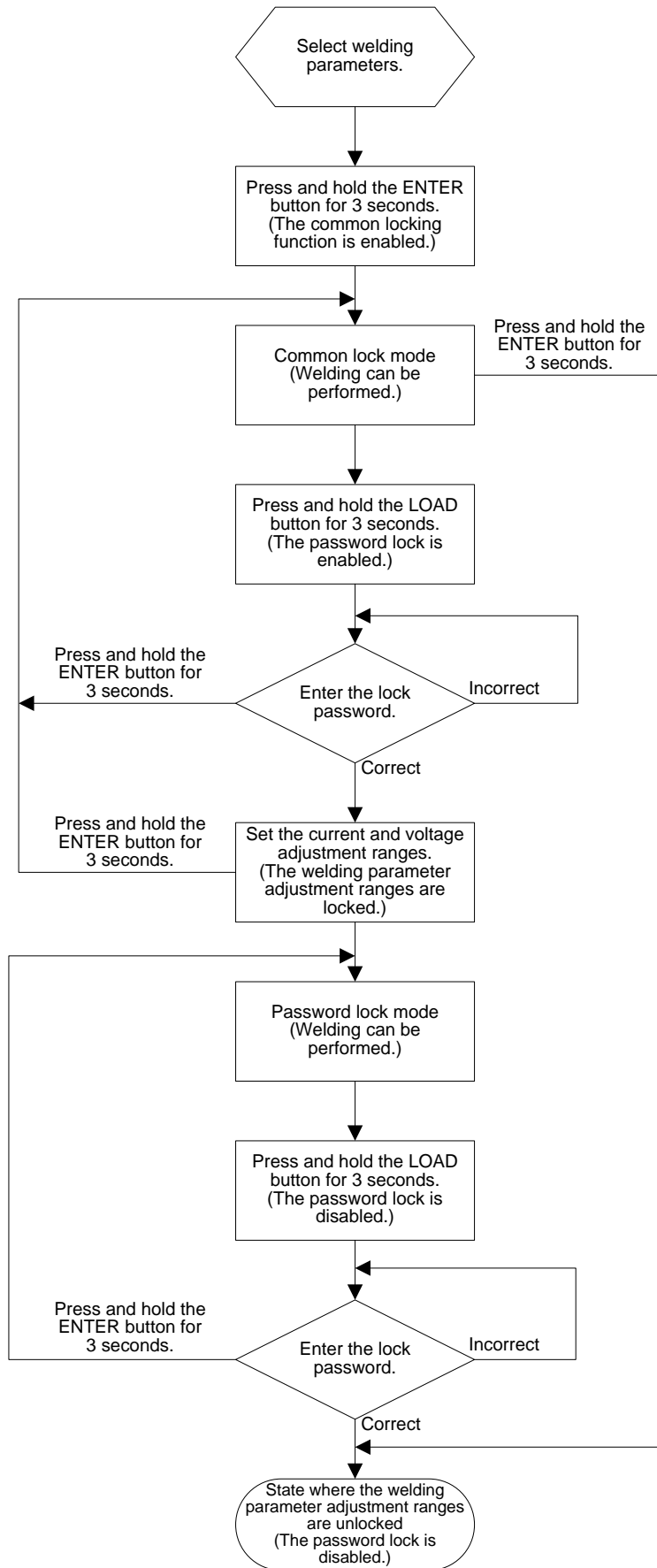


Figure 3-36 Procedure for locking the welding parameter adjustment ranges

### 3.4.10 Internal Menu










1. In the parameter setup mode, you can press the **SAVE**  and **LOAD**  buttons at the same time to access the internal menu. In this case, the **Job No.** indicator flashes. In the internal menu, you can press the **SAVE**  and **LOAD**  buttons at the same time to exit from the internal menu. In this case, the **Job No.** indicator turns off.
2. In the internal menu, you can use the knob to switch among menu items at the same level and adjust parameter values.
3. In the internal menu, you can press the **LOAD**  button to go to the previous menu item and the **SAVE**  button to go to the next menu item.
4. In the internal menu, you can press the **ENTER**  button to select a parameter. Before adjusting a parameter, press the **ENTER**  button to select the parameter. When the parameter is selected, it flashes. Then, use the knob to change the value of the parameter and press the **ENTER**  button to confirm the change.

Figure 3-37 describes the internal menu.








		Select menu levels.		Adjust parameters.		Confirm parameter settings.
			Access the menu.			
Code	Description	Level-2 Menu	Level-3 Menu	Level-4 Menu	Factory settings	
F01	Restore factory settings					
F02	CO2/MAG setup	21PP Starting arc parameter	211P Wire inching speed		1.4 meter/minute	
			212P Send gas before welding		0.2 second	
			213P Hot arc starting	2131 Starting arc voltage	20.0 V	
			2132 Starting arc current	160 A		
			2133 Hot arc starting time	0.0 second		
		22PP Ending arc parameter	221P Burn-back voltage		12.0 V	
	222P Burn-back time		0.00 second			
	224P Delayed gas sending time		2.0 second			
F03	Welding electrode setup	31PP Starting arc current			300 A	
		32PP Hot startup current			50 A	
		33PP Thrust current			30 A	

Figure 3-37 Internal menu description

### 3.4.11 Welder Network Monitors

Refer to the *Welder Network Monitors User Manual*.

## 3.5 Welding Electrode

The welding electrode function facilitates manual arc welding and enables you to use an electrode holder and a welding electrode to perform welding. This welder allows manual DC arc welding.

The procedure is as follows:

1. Press the **Wire type** button and select **Electrode**, the system enters the manual arc welding mode.
2. Use the knob on the control panel to adjust the current.
3. Perform welding after the parameters are set. See Figure 3-38.

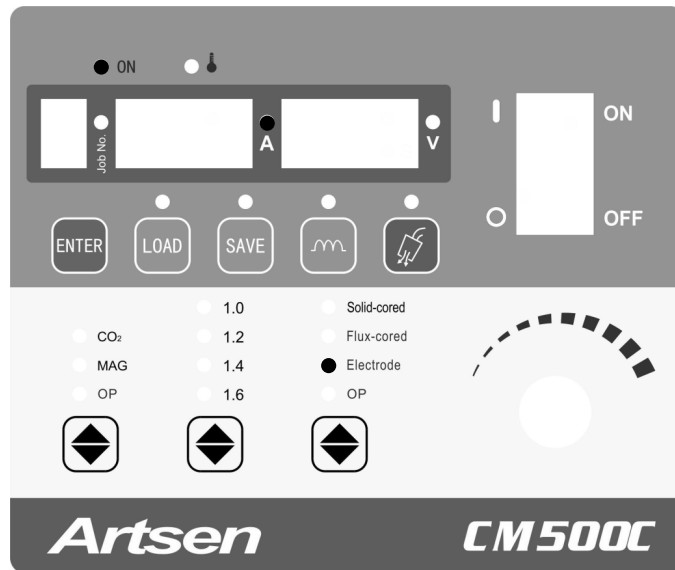


Figure 3-38 Selecting the mode of manual arc welding

## 3.6 Intelligent Function Description

### 3.6.1 Energy Conservation Function of the Fan

- The fan starts working when the power switch is turned on, and stops working if no operation is performed within 10 minutes.
- It rotates at a low speed when the welding current is lower than 300 A, and rotates at a high speed when the welding current is higher than 300 A.
- It stops working 10 minutes after welding is ended.


### 3.6.2 Safety Protection Function for the Welding Torch

After startup, if the welding torch is turned on but is not used within 10 seconds, the main power output is disabled. This ensures safe usage.

### 3.6.3 Slow Wire Inching




In the period between startup of slow wire inching and starting arc generation, the wire inching speed is slower than that in the welding period. Slow wire inching aims to increase the starting

arc generation success rate and reduce fusion problems in the arc welding startup section of a weld.

 Note

Slow wire inching can be customized based on user requirements.

### 3.7 Restoring Factory Settings

Press the **SAVE**  and **LOAD**  buttons at the same time. The middle screen displays **F01**. Press the **ENTER**  button. The factory settings are restored. See Figure 3-39.

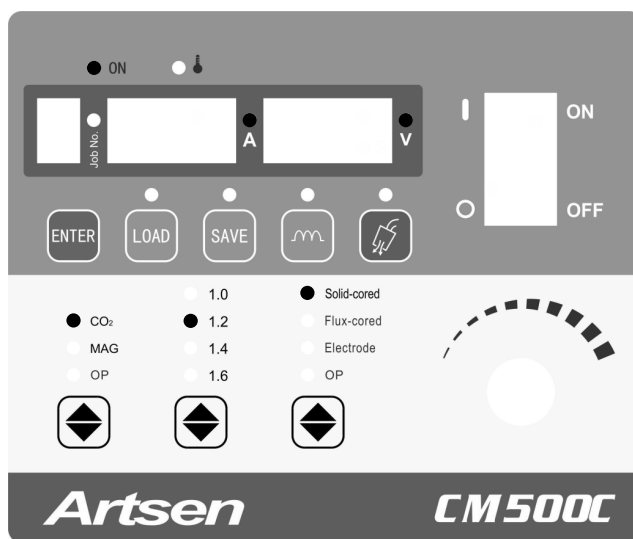



Figure 3-39 Restoring the factory settings

 Note

1. When the factory settings of the welder are restored, the parameters saved to channels are not deleted.
2. When the factory settings of the welder are restored, the lock password is not deleted.



# Chapter 4 Maintenance

## 4.1 Daily Inspection

### Safety Warning

Daily inspection (except for appearance inspection that does not require contact of electrical conductors) can be performed only after the distribution box power supply and welder power supply are turned off. This aims to prevent injuries such as electric shocks and burns.

### Usage Notes

1. Daily inspection is key to ensuring high performance and operation safety of the welder.
2. Perform daily inspection based on the items specified in the following table. Perform cleaning and component replacement when needed.
3. To ensure high performance of the welder, use only the components provided or recommended by Megmeet when replacing components.

### Welder

Table 4-1 Daily inspection on the welder

Item	Check Content	Remarks
Front panel	Check whether the mechanical components are damaged or loose. Check whether the cables at the lower part are fastened. Check whether the fault indicators flash.	Regularly check the components under the terminal cover at the lower part. If an issue is detected, perform internal inspection on the welder, and fasten or replace components.
Rear panel	Check whether the power supply terminal cover is intact. Check whether the air vent is blocked.	
Top plate	Check whether the hoist ring bolts and the other bolts are loose.	If an issue is detected, fasten or replace components.
Base plate	Check whether the casters are damaged or loose.	
Side panel	Check whether the side panels are loose.	
General	Check whether the appearance shows decolorization or is overheated. Check whether the sound emitted by the fan when the welder is operational is normal. Check whether a peculiar smell or unexpected vibration or noises are detected when the welder is operational.	If an exception is detected, perform internal inspection on the welder.

### Power Cables

Table 4-2 Daily inspection on power cables

Item	Check Content	Remarks
Grounding cable	Check whether the grounding cables are disconnected, including the workpiece grounding cable and welder grounding cable.	If an issue is detected, fasten or replace components.

Item	Check Content	Remarks
Welding cables	<p>Check whether the insulation layer or other parts of the cable are damaged and whether the conductor is exposed.</p> <p>Check whether the cable is extended by unexpected external forces.</p> <p>Check whether the workpiece power cable and the workpiece are connected firmly.</p>	To ensure safe and proper welding, take appropriate measures to perform inspection according to the site situations.

### Other Components

Table 4-3 Daily inspection on the other components

Item	Check Content	Remarks
Welding torch	Follow the user manual of the welding torch to perform daily inspection.	/
Wire feeder	Follow the user manual of the wire feeder to perform daily inspection.	/
Electrically-heated CO <sub>2</sub> regulator	Follow the user manual of the electrically-heated CO <sub>2</sub> regulator to perform daily inspection.	/
Gas tube	<p>Check whether the gas tube is connected firmly and whether the soft clamps (if any) are loose.</p> <p>Check whether the tube are damaged or leaky.</p>	If an issue is detected, fasten or replace the tube.

## 4.2 Regularly Inspection

### Safety Warning

1. To ensure safety, regular inspection must be performed by certified personnel.
2. It can be performed only after the power supplies of the distribution box and the welder are turned off, so as to prevent injuries such as electric shocks and burns.
3. It can only be performed 5 minutes after the welder is powered off because of capacitor discharge.

### Operation Notes:

1. To prevent static electricity from damaging semiconductors and PCBs, take ESD measures or touch the metal parts of the housing with your hand to remove static electricity before touching the conductors of internal cables and the PCBs of the welder.
2. Do not use the solution other than neutral detergents for household use to clean the plastic parts.

### Regular Inspection Plan

1. Perform regular inspection to ensure a long service life of this welder.
2. Perform regular inspection carefully, including checking and cleaning the interior of the welder.
3. Generally, regular inspection must be performed every 6 months. However, if the site is dusty or has heavy oily smoke, perform regular inspection every 3 months.
4. Table 4-4 provides a recommended regular inspection plan.

Table 4-4 Regular inspection plan (year: xxxx)

SN	Planned Inspection Date	Actual Inspection Date	Inspected By
1	2012-03-15		
2	2012-06-15		
3	2012-09-15		
...	...		

### Regular Inspection Items

(You can add inspection items to the following items according to the actual situations.)

1. Remove dust from inside the welder.

Remove the top plate and side plates of the welder. Use dry compressed air to blow off the spatters and dust from inside the welder. Then, remove the dirt and unexpected objects from inside the welder.

---

#### Note

Heavy dust on the radiator affects cooling and may easily cause over-temperature protection.

---

2. Check the welder.

Remove the top plate and side plates of the welder. Check for signs of peculiar smells, discoloration, or damages caused by excessive heat. Check whether the connections are loose.

3. Check the power cables and gas tube.

In addition to daily inspection, check the grounding cables, power cables, and gas tubes more carefully and regularly resolve fastening issues.

### Voltage-Resistance Test and Insulation Test

The tests can be performed only by Megmeet's after-sale service personnel or professional personnel with knowledge on electric devices and welders.

The procedure is as follows:

1. Turn off the distribution box power supply.
2. Disconnect all the grounding cables of the housing.
3. Remove all peripherals including the wire feeder from the welder.
4. Connect the three input terminals of the input busbar to create a short circuit.
5. Turn the switch of the welder to the **ON** position.
6. Connect the positive output terminal, negative output terminal, and power cable connector of the wire feeder using cables to create a short circuit.
7. The models of the cables used to create short circuits must be the same and the cross-sectional area of each cable must not be smaller than 1.25 mm<sup>2</sup>.

---

#### Note

All changes and alteration performed for the voltage resistance test must be removed after the test.

---

## 4.3 Troubleshooting

---

#### Note

If a screen displays - - - - -, it indicates that no parameter is set and does not indicate a welder fault.

---

### 4.3.1 Welder Fault Indicator

When an internal fault of the welder occurs, the red indicator on the control panel of the welder turns on.

 Note

During welding, differences between the current and voltage displayed on the LED screens and the preset current and voltage do not necessarily indicate a fault. The differences may be caused by the used gas, welding wire, wire stick-out, and welding method.

### 4.3.2 Welder Error Codes and Solutions

Figure 4-1 shows the screens and indicators.

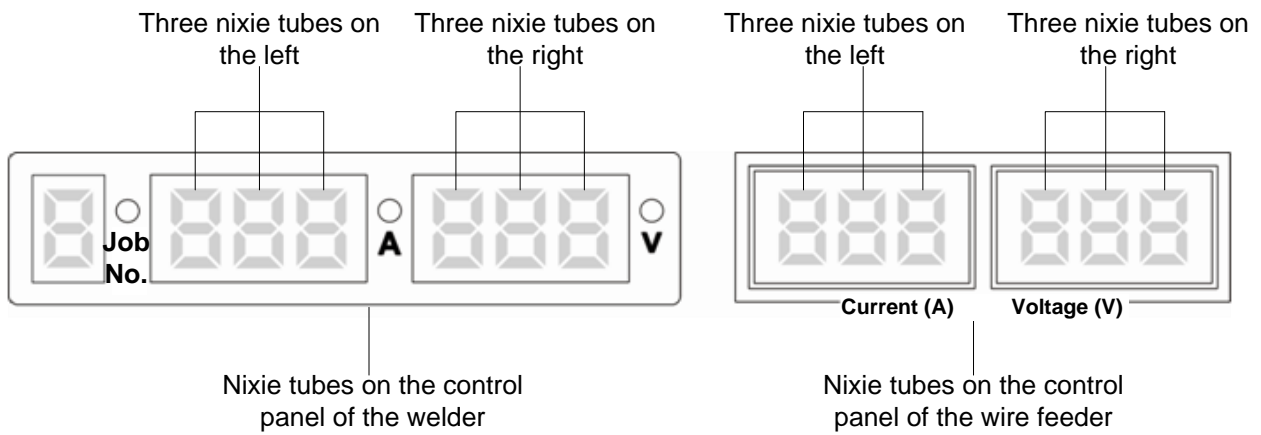


Figure 4-1 Schematic diagram of screens

Table 4-5 describes the error codes of the welder as well as causes and solutions.

Table 4-5 Welder faults, causes, and solutions

Error Code	Displayed Content		Fault	Cause	Solution
	Three Nixie Tubes in the Left Screen	Three Nixie Tubes in the Right Screen			
F00	F00	None	Power-on self-test	/	/
E1	E 1	None	Welding torch fault	When the welder is turned on, the welding torch power switch is on. The switch is broken.	Turn off the switch. Replace the welding torch.
E2	E 2	1	Over-temperature of the negative output terminal of the welder	The output terminal and power cable are disconnected or the screw is not fastened. The copper cross-sectional area of the output power cable is too small.	Reliably fasten the output terminal. Use cables with greater cross-sectional areas. Select suitable cable terminals. Verify that the fan works properly.
		2	Over-temperature of the positive output terminal of the welder	The output cable terminal fails to meet the specification requirement. The fan does not work or slows down.	

Error Code	Displayed Content		Fault	Cause	Solution
	Three Nixie Tubes in the Left Screen	Three Nixie Tubes in the Right Screen			
E3	E 3	1	Input power overvoltage occurs.	<p>The input power cable is not connected properly.</p> <p>Input power overvoltage occurs.</p> <p>Input power undervoltage occurs.</p> <p>Input power phase imbalance occurs.</p> <p>The input power frequency exceeds the range.</p>	<p>Verify that the input cables are connected properly.</p> <p>Verify that the input power is normal.</p>
		2	Input power undervoltage occurs.		
		3	Input power overfrequency occurs.		
		4	Input power underfrequency occurs.		
		5	Phase loss occurs on the input power voltage.		
		6	The voltage/frequency ratio of the power input exceeds the range.		
E4	E 4	1	Output inductor over-temperature	<p>The rated duty cycle is exceeded.</p> <p>The air vent of the housing is blocked.</p> <p>The radiator is covered with heavy dust.</p> <p>The fan does not work or slows down.</p> <p>The diode current is excessively high.</p>	<p>Ensure that the welder works within the rated duty cycle range.</p> <p>Verify that the air vent of the welder is not blocked.</p> <p>Remove dust from the radiator.</p> <p>Verify that the fan works properly.</p> <p>Verify that the output diode module works properly.</p>
		2	Output diode over-temperature		
E5	E 5	Welder: 1 - 8	Button error	<p>A button is jacked up.</p> <p>A button does not rebound after being pressed.</p> <p>A button is broken.</p>	Check the buttons corresponding to the numbers (displayed on the right screen) shown in Figure 3-1.
		Wire feeder: 1 - 5			Check the buttons corresponding to the numbers (displayed on the right screen) shown in Figure 3-2.
E6	E 6	None	Output overcurrent	<p>The output is short-circuited or the current is too high.</p> <p>The output diode module is broken.</p>	<p>Verify that the output is not short-circuited.</p> <p>Verify that the output diode module is not broken.</p>

Error Code	Displayed Content		Fault	Cause	Solution
	Three Nixie Tubes in the Left Screen	Three Nixie Tubes in the Right Screen			
E7	E 7	1	Communication fault on the display board of the welder	<p>The input power cable is not connected properly.</p> <p>Input power phase loss or phase imbalance occurs.</p> <p>The control board of the welder is not power on.</p> <p>The control board of the welder is broken.</p> <p>The communication cable between the control board of the welder and the display board of the welder is disconnected.</p>	<p>Verify that the input cables are connected properly.</p> <p>Verify that the input power is normal.</p> <p>Verify that the control board connection is normal.</p> <p>Verify that the display board connection is normal.</p> <p>Verify that the control board works properly.</p>
		2	Communication fault on the carrier rectification board	<p>The communication cable between the control board of the welder and the carrier rectification board is disconnected.</p> <p>The carrier rectification board is broken.</p> <p>The control board of the welder is broken.</p>	<p>Verify that the control board connection is normal.</p> <p>Verify that the carrier rectification board connection is normal.</p> <p>Verify that the carrier rectification board works properly.</p> <p>Verify that the control board works properly.</p>
		3	Fault on communication between the welder and the wire feeder	<p>The carrier cable and output power cable are not connected properly.</p> <p>The carrier cable is not disconnected.</p> <p>The carrier wire inching control board is broken.</p> <p>The carrier rectification board is broken.</p>	<p>Verify that the carrier cable is connected properly.</p> <p>Verify that the output cable is connected properly.</p> <p>Verify that the carrier cable is not broken.</p> <p>Verify that the carrier wire inching control board works properly.</p>
		4	Communication fault on the display board of the wire feeder	<p>The communication cable between the carrier wire inching control board and the display board of the wire feeder is disconnected.</p> <p>The display board of the wire feeder is broken.</p> <p>The carrier wire inching control board is broken.</p>	<p>Verify that the carrier wire inching control board connection is normal.</p> <p>Verify that the display board connection of the wire feeder is normal.</p> <p>Verify that the display board works properly.</p> <p>Verify that the carrier wire inching control board works properly.</p>
E8	E 8	None	Output overvoltage	<p>The input voltage is too high.</p> <p>The main transformer is broken.</p> <p>The output cables are not connected correctly.</p>	<p>Verify that the input voltage is normal.</p> <p>Verify that the main transformer is not broken.</p> <p>Verify that the output cables are connected correctly.</p>

Error Code	Displayed Content		Fault	Cause	Solution
	Three Nixie Tubes in the Left Screen	Three Nixie Tubes in the Right Screen			
E9	E 9	None	Primary side overcurrent	IGBT is broken. The primary side diode is broken. The main transformer is broken. The secondary output diode module is broken.	Verify that the main power board is not broken. Verify that the main transformer is not broken. Verify that the output diode module is not broken.
E10	E10	None	Primary side overvoltage	The input power is insufficient. The input voltage is too high.	Verify that the input power is normal. Verify that the input voltage is normal.
E11	E11	None	Current Hall connector disconnection	The current Hall connector is disconnected.	Verify that the connector is connected.
E12	E12	None	Disconnection of the input voltage detection connector	The input voltage detection connector is not connected or the ring terminal of the connection cable is not connected. The input voltage detection cable is broken.	Verify that the input voltage detection connector is connected and the ring terminal of the connection cable is connected. Verify that the input voltage detection cable is normal.
E13	E13	None	Wire feeder motor overcurrent	Wire feeder motor stalling occurs. The motor power cable of the wire feeder is short-circuited. The wire feeder motor is broken.	Verify that wire inching is normal. Verify that the wire inching motor is not broken. Verify that the motor power cable of the wire feeder is normal.
E14	E14	1	Solenoid valve short circuit	The power cable of the solenoid valve is short-circuited. The power cable of the solenoid valve is not connected. The solenoid valve is broken.	Verify that the power cable of the solenoid valve is normal. Verify that the solenoid valve is not broken.
		2	Solenoid valve open circuit		
E15	E15	None	Carrier cable short circuit	The carrier cable and power cable are short-circuited. The carrier cable and workpiece are short-circuited.	Verify that the carrier cable is not damaged. Verify that the output cables are connected correctly.
E16	E16	None	Ferrite core open circuit on the wire feeder	The cable led out from the ferrite core is not connected. The ferrite core is broken.	Verify that the cable led out from the ferrite core is connected correctly. Verify that the ferrite core is not broken.
E20	E20	2	Welder control board not registered	The PCB is not certified.	Purchase the PCB certified by the Megmeet.
		4	Wire feeder control board not registered		

### 4.3.3 Rectifying Welder Faults and Welding Process Issues

When the welder is faulty or fails to perform self-identification, perform the checks specified in Table 4-6.

Table 4-6 Welder fault symptoms

Starting arc generation failure	Gas sending failure	Wire inching failure	Improper starting arc generation	Unstable arc	Rough weld edge	Sticking between wire and workpiece	Sticking between wire and tip	Porosity	Fault Symptom / Check Content		Related Component or Environment
○	○	○							The switch is not turned on or is tripped. The fuse is blown. Phase loss occurs on the three-phase power supply. The connection is loose.	Distribution box	
○	○	○							The cable is disconnected. The connection is loose.	Input power cable	
○	○	○							The switch is not turned on or is tripped. The fuse is blown.	Welder	
	○			○				○	The main valve of the gas cylinder is not opened. The gas volume is insufficient. The gas purity does not meet the requirement.	Gas cylinder	
	○			○				○	The gas flow control by the regulator is inappropriate. The connection to the gas tube or gas cylinder is loose.	Electrically-heated CO <sub>2</sub> regulator	
	○			○				○	The gas tube is broken. The connection to the regulator or wire feeder is loose.	Gas tube	
		○	○	○	○		○		The wire inching roll and wire liner do not match the wire diameter. The wire inching roll is broken or the groove is blocked. The force imposed by the strut bar of the wire inching roll is insufficient. The inlet of the wire liner is blocked.	Wire feeder	
○	○	○		○		○			The welder power cable or welding torch power cable is broken. The connection to the wire feeder is loose. The cables are damaged.	Welder power cable and welding torch power cable	
		○	○	○	○		○		Excessive roll-up or bending occurs.		
		○	○	○	○		○		The tip and wire liner do not match the welding wire. The tip or wire liner is worn out, blocked, or deformed.	Welding torch	
				○	○		○		The tip, nozzle, or welding torch pipe is not connected firmly. The connection to the wire feeder is loose.		
○			○	○	○				The cross-sectional area of the power cable is too small. The connection is loose. The workpiece conductivity is poor.	Welding power cable on the workpiece side	
			○	○	○			○	The surface is covered with oil stain, impurities, or paint.	Workpiece surface	
			○	○	○	○			The cross-sectional area of the power cable is too small. The power cable is excessively bent.	Extended power cable	
			○	○	○	○	○		The current, voltage, welding torch angle, welding speed, or wire extension length is inappropriate. The difference between the controlled waveform and the standard waveform is excessively large.	Welding conditions	

Note: ○ indicates that the check must be performed.



## 4.4 After-Sale Service

### Warranty Card

Each welder has a warranty card. Fill in the form on the card.

Read the information on the card and maintain the card properly.

### Repair

Refer to Section 4.3.2 "Error Codes of the Welder and Solutions" and Section 4.3.3 "Rectifying Welder Faults and Welding Process Issues" to perform preliminary troubleshooting or record fault information.

Contact the local reseller when components must be repaired or replaced. Use only the components or accessories provided or recommended by Megmeet.

Megmeet provides a one-year repair service for the welder. The service is available from the purchase time recorded on the warranty card or invoice for the welder.

The warranty does not cover a product damage caused when the product is not used properly by the user. However, such damage can be handled in the repair process.

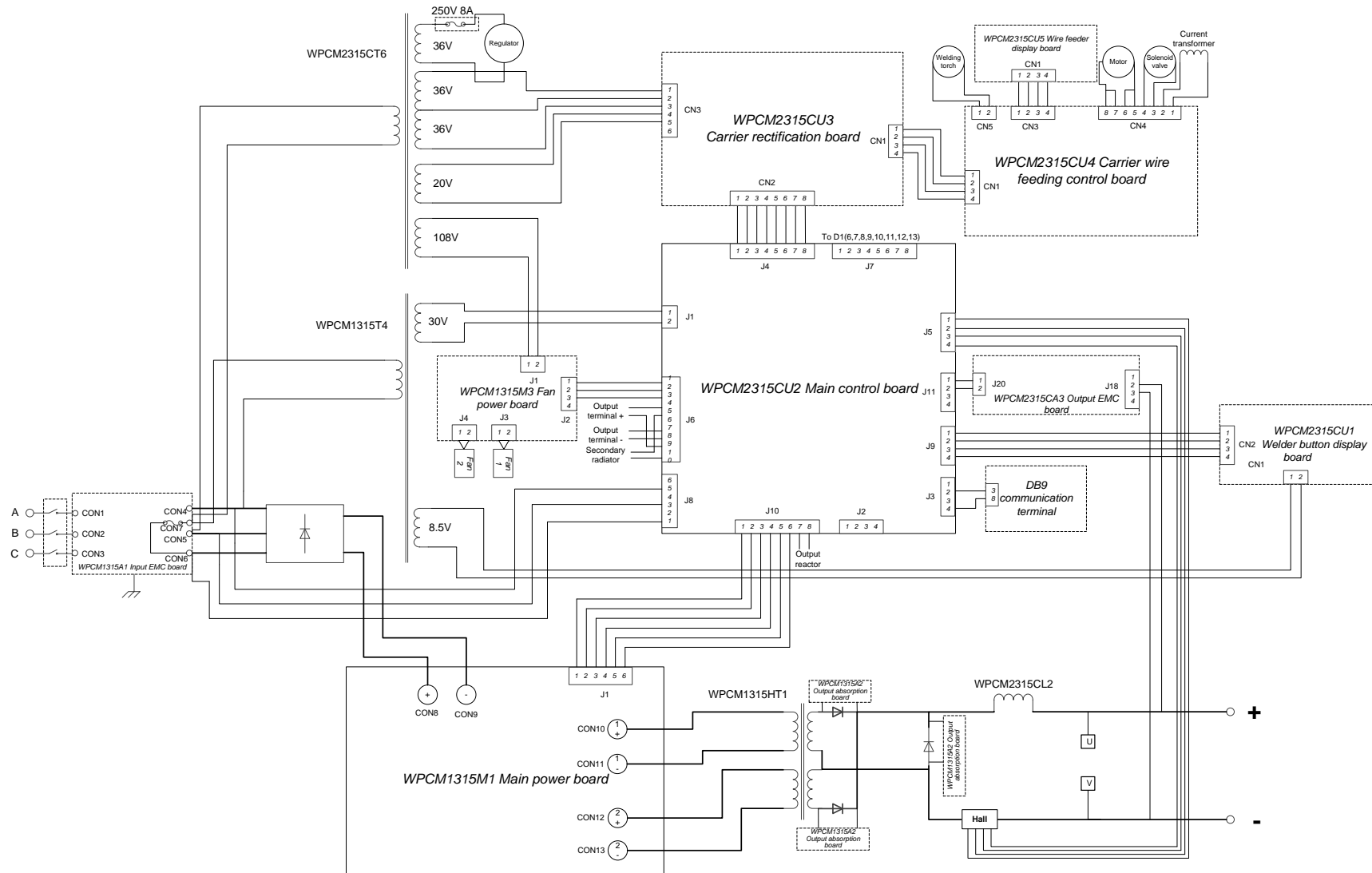
# Appendix 1 Technical Specifications

Table 1 describes the technical specifications.

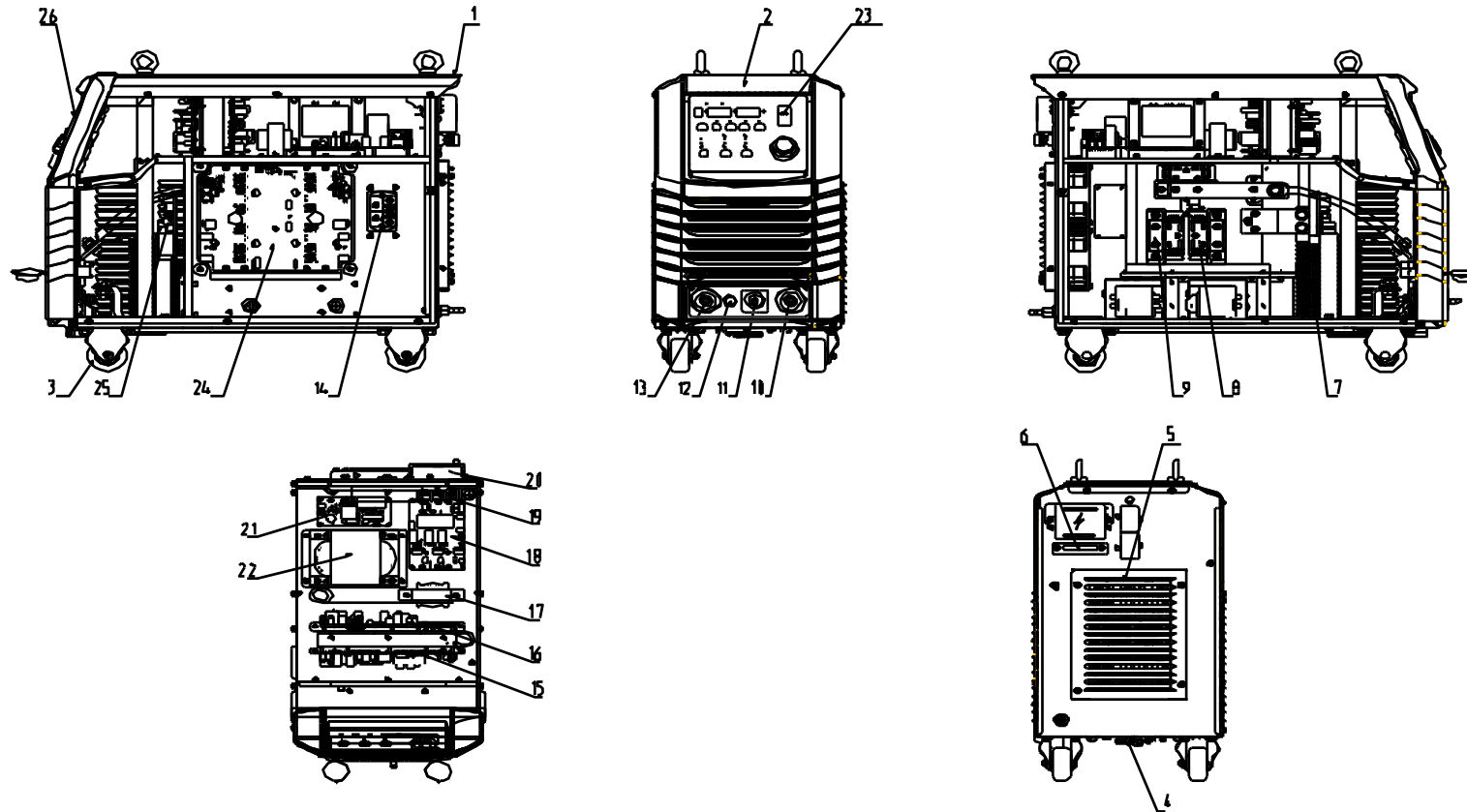
Table 1 Technical specifications

Welder	Unit	Artsen CM500C
Control mode	-	Full Digital
Input voltage	-	3 phase 380 V AC
Input frequency	Hz	50/60
Input capacity	kVA/kW	24/22.3
Power factor	-	0.93
Output characteristics	-	CV, CC
Output current	A	500
Output voltage	V	39
Rated duty cycle	%	500 A @ 100% @ 40°C
Rated open-circuit voltage	V	71
Rated output current	A	50 - 500
Rated output voltage	V	12 - 50
Current and voltage adjustment method	-	Independent
Protection class	-	IP23S
Insulation class	-	H
Cooling mode	-	Intelligent cooling
Wire type	-	Solid wire/flux-cored wire
Wire diameter	mm	1.0/1.2/1.4/1.6
Wire material	-	Carbon steel wire (MS); carbon steel - flux-cored wire (MS-FCW)
Shielding gas	-	CO <sub>2</sub> : 100%; MAG: Ar 80% + CO <sub>2</sub> 20%
Dimensions (L x W x H)	mm	667.5 x 300 x 564
Weight	kg	55
Wire feeder model	-	WF2-50GZ-MC
Welding torch model	-	QTB-500K
Rated current	A	500
Length of the welding torch power cable	m	3
Length of the welder power cable	m	3 m - 50 m (optional)
Cross-sectional area of the welder power cable	mm <sup>2</sup>	50 or greater
Length of the power cable on the welding material side	m	1.8
Cross-sectional area of the power cable on the welding material side	mm <sup>2</sup>	50 or greater
Electrically-heated CO <sub>2</sub> regulator	-	GH-257-36/394C-25L-36
Gas tube	m	3 m - 50 m (optional)

# Appendix 2 Electric Connections



## Appendix 3 Components



26	Button display board
25	Output EMC board
24	Main power board
23	Power switch
22	Large line-frequency transformer
21	Fan control board
20	Cable terminal cover
19	Cable terminal block
18	Input EMC board
17	Small line-frequency transformer
16	Main control board
15	Carrier rectifier bridge
14	3-phase rectifier bridge
13	Negative output terminal
12	Connector of the wire feeder power cable
11	Gas tube connector
10	Positive output terminal
9	Diode
8	Output absorption board
7	Inductor
6	Cable terminal block
5	Fan
4	Hex key
3	Caster
2	Plastic panel
1	ZA chassis without load

Figure 1 Components

## Appendix 4 Detailed Component List

Table 2 Detailed component list

Component	Artsen CM500C	
	Quantity	Code
Button display board	1	R11100514
Output EMC board	1	R11111900
Main power board	1	R11110085
Power switch	1	R34010102
Line-frequency transformer CT6	1	R23011428
Fan control board	1	R11110087
Cable terminal cover	1	30040908
Cable terminal block	1	30040907
Input EMC board	1	R11110089
Line-frequency transformer T4	1	R23010894
Main control board	1	R11100515
Carrier rectification board	1	R11100516
3-phase rectifier bridge	1	R26060167
Negative output terminal	1	30040912
Connector of the wire feeder power cable	2	R29130140
Gas tube connector	1	R29130139
Positive output terminal	1	30040911
Diode	3	R26020100
Output absorption board	1	R11110090
Inductor	1	R22011485
Cable terminal block	1	30040910
Fan	2	R34020011
Hex key	1	R29120011
Caster	4, Optional	R29120012
Plastic panel	1	R29060466
ZA chassis without load	1	R29140047





Shenzhen Megmeet Electric Co., Ltd.

## Welder Warranty Card

Company:	
Address:	
Zip code:	Contact person:
Tel:	Fax:
Machine model:	
Power:	Machine ID:
Contract ID:	Purchase date:
Service provider:	
Contact person:	Tel:
Repaired by:	Tel:
Repaired on:	
Service quality rating: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Normal <input type="checkbox"/> Poor	
Other comments: User's signature    (year)    (month)    (day)	
Return visit of customer service center: <input type="checkbox"/> By call <input type="checkbox"/> By mail	
Others: Signature of technical support engineer: (year)    (month)    (day)	

**Note: This card is voided when it is unable to pay a user return visit.**



Shenzhen Megmeet Electric Co., Ltd.

## Welder Warranty Card

Company:	
Address:	
Zip code:	Contact person:
Tel:	Fax:
Machine model:	
Power:	Machine ID:
Contract ID:	Purchase date:
Service provider:	
Contact person:	Tel:
Repaired by:	Tel:
Repaired on:	
Service quality rating: <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Normal <input type="checkbox"/> Poor	
Other comments: User's signature    (year)    (month)    (day)	
Return visit of customer service center: <input type="checkbox"/> By call <input type="checkbox"/> By mail	
Others: Signature of technical support engineer: (year)    (month)    (day)	

**Note: This card is voided when it is unable to pay a user return visit.**

---

---

## User Notice

1. The warranty covers only the welder.
2. The warranty period is 12 months. Welder faults or damages caused during normal usage within the period will be fixed by Megmeet free of charge.
3. The warranty service is effective from the delivery date of the welder. The warranty period can be determined against only the welder ID. If the welder does not have an ID, it is handled in the same way as a welder whose warranty period has expired.
4. Megmeet will charge a fee for resolving the following issues even in the warranty period:
  - Welder fault resulting in a failure to comply with the user manual
  - Welder damage caused by a fire, flood, or voltage exception
  - Damage caused when the welder is used for purposes for which it is not intended
5. Megmeet will charge the service fee that incurs, unless otherwise stipulated in the contract.
6. Keep this card and present it to the maintenance organization when requesting the warranty service.
7. If you have any questions, contact the reseller or Megmeet.

Shenzhen Megmeet Electric Co., Ltd.  
Customer Service Center

Address: 5th Floor Block B, Ziguang Information Harbor, Langshan Road, Shenzhen,  
518057, China  
Zip code: 518057  
Customer service hotline: 4006662163

---

---

---

---

---

---

---

## User Notice

1. The warranty covers only the welder.
2. The warranty period is 12 months. Welder faults or damages caused during normal usage within the period will be fixed by Megmeet free of charge.
3. The warranty service is effective from the delivery date of the welder. The warranty period can be determined against only the welder ID. If the welder does not have an ID, it is handled in the same way as a welder whose warranty period has expired.
4. Megmeet will charge a fee for resolving the following issues even in the warranty period:
  - Welder fault resulting in a failure to comply with the user manual
  - Welder damage caused by a fire, flood, or voltage exception
  - Damage caused when the welder is used for purposes for which it is not intended
5. Megmeet will charge the service fee that incurs, unless otherwise stipulated in the contract.
6. Keep this card and present it to the maintenance organization when requesting the warranty service.
7. If you have any questions, contact the reseller or Megmeet.

Shenzhen Megmeet Electric Co., Ltd.  
Customer Service Center

Address: 5th Floor Block B, Ziguang Information Harbor, Langshan Road, Shenzhen,  
518057, China  
Zip code: 518057  
Customer service hotline: 4006662163

---

---

---

---

---