

# Product User Manual



## Digital Double Pulse Gas-shielded Welding Machine

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Master-MIG 215DPP/Master-MIG 185DP

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<b>Model:</b>	<b>Model code:</b>
Master-MIG 215DPP	PMD28
Master-MIG 185DP	

As the user's manual of digital MASTER-MIG DPP series inverter welding machine, this Manual is only for the MASTER-MIG DPP series welder. No prior notice will be given in case of any change.

In the benefit of you and others, we recommend you to read and fully understand this Manual before installation and operation.

### Safety instructions

 Note	<p>Please install and use strictly according to the Manual!</p> <p>Electrical connection can be done only after the power of the distribution box is turned off. The operation process shall conform to relevant safety operation rules.</p>		
 	<p>Warning</p> <p>An electric shock may hurt or even kill people.</p>	<p>Please turn off the power of the distribution box before wiring. Do not touch exposed conductive parts.</p>	 <p>Welding operation may cause fire or explosion!</p> <p>Welding spatter may ignite combustibles nearby.</p> <p>Combustibles shall be placed at least 10m from the welding site. Prevent the spatter from falling on clothes or body.</p>
	<p>The welding fume is harmful to health. Do not inhale the fume produced during welding. Clean up the greasy dirt on work piece. Keep the welding site in ventilation. Smoke and dust exhausting facility shall be arranged at the welding station.</p>		 <p>The arc light may hurt the eyes and the skin.</p> <p>Strong arc light may hurt the eyes. The ultraviolet rays produced by the electric arc may hurt the skin and the eyes, and please wear labor protection clothes properly during welding.</p>
	<p>Inert gases are harmful to the human body. Inert gases are harmful to the human body and even cause suffocation, so please choose a well-ventilated environment for welding. If not, please close the gas cylinder valve.</p>		 <p>High-frequency arc ignition may cause electromagnetic radiation. Radiation may interfere with other devices! Contact arc ignition can be used to avoid interference.</p>
	<p>The overheated part may burn the skin, and do not touch the overheated welding part.</p> <p>The overheated part may burn the skin, and do not touch the overheated welding part.</p>		 <p>High-speed moving objects may cause hurt.</p> <p>and do not put your hands or a thin objects into the fan hood.</p> <p>Please cover the open shell during welding.</p>
	<p>The gas cylinder may explode. so do not to heat it.</p> <p>It is preferred to keep the gas cylinder away from the welding site and fix it well.</p>		 <p>Personal protection.</p> <p>To prevent eye and skin injury, please comply with the rules of labor safety and health and wear necessary protective clothing!</p>

# Contents

<b>01</b>	Overview	1 Characteristics of digital pulse gas-shielded welding machine-----P <sub>01</sub>
<b>02</b>	Precautions for electromagnetic compatibility	2-1 Overvie -----P <sub>03</sub> 2-2 Environmental assessment and recommendations -----P <sub>03</sub> 2-3 Method to reduce emission-----P <sub>03</sub>
<b>03</b>	Installation of welding machine	3-1 Installation environment-----P <sub>05</sub> 3-2 Quality of power supply voltage-----P <sub>05</sub> 3-3 Basic parameters-----P <sub>05</sub>
<b>04</b>	Control and connection	4-1 Control and interface-----P <sub>07</sub> 4-2 Guidance for device connection-----P <sub>09</sub>
<b>05</b>	Control panel of welding machine	5-1 Operation panel description-----P <sub>09</sub>
<b>06</b>	Wire feeder	6-1 Wire feeder mechanism-----P <sub>16</sub> 6-2 Specification and installation of wire feeding wheel-----P <sub>16</sub> 6-3 Braking and Adjustment of Wire Reel-----P <sub>17</sub>
<b>07</b>	Installation of Welding Torch	7-1 Installation of Gas Shielded Arc Welding Torch -----P <sub>18</sub>
<b>08</b>	Maintenance of welding machine	8-1 Precautions for use-----P <sub>19</sub> 8-2 Regular inspection and maintenance of welding machine-----P <sub>19</sub> 8-3 Welding machine troubles and trouble-shooting -----P <sub>19</sub>
<b>09</b>	Technical data	9-1 Schematic diagram of main circuit-----P <sub>20</sub>

## 1 Characteristics of digital double pulse gas-shielded welding machine

Thank you for buying the digital inverter welding machine . Please read the Manual carefully before use. This Manual is applicable to the following welding machine:  
Master-MIG 215DPP/Master-MIG 185DP

MASTER-MIG DPP series digital double pulse welding machines apply to welding methods including MMA, MIG/MIX, PULSE AlMg, PULSE AlSi and DOUBLE PULSE. MASTER-MIG DPP series welding machines are suitable for welding materials including carbon steel, stainless steel, aluminum-magnesium, aluminum-silicon and flux-cored wire. Its characteristics include no-spatter, uniform weld pool, etc.

The performance features are as follows:

- Use full-digital control system to realize precise control and stable arc length during welding.
- Use full-digital wire feeding control system to realize precise and stable wire feeding.
- With built-in welding expert database, the system can be used to realize automatic intelligent parameter combination.
- Friendly operation interface, unified regulating mode, easy to master.
- Perfect single pulse and double pulse functions, minimum welding spatter and good-looking appearance of weld.
- The special four-step function is suitable for welding metals with good thermal conductivity, and the welding quality is perfect during the arc initiating and extinguishing.

The manufacturing of this series welding machines conforms to the GB15579.1-2004 Arc Welding Equipment - Part 1: Welding Power Source

## Precautions for electromagnetic compatibility

### 2-1 Overview

Welding may cause electromagnetic interference.

The interference emission of the arc welding equipment can be minimized by proper installation and proper use.

The product described in this Manual is a Class A equipment (applicable to all occasions other than residential areas powered by public low voltage power systems).

Warning: Class A equipment are not applicable to residential buildings powered by public low voltage power systems. Due to conduction and radiation disturbance, it is difficult to guarantee electromagnetic compatibility in these places.

### 2-2 Environmental assessment and recommendations

Before installing the arc welding equipment, the user shall evaluate the potential electromagnetic disturbance within the surrounding environment. Considerations are as follows:

- If there are any power cables, control cables, signal and telephone line on or under or around the arc welding equipment;
- If there are radio and television transmitting and receiving equipment;
- If there are computers and other control equipment;
- If there are equipment of high-level of security, such as industrial protective equipment;
- It needs to consider the health of the staff working around, to see if there are individuals wearing hearing -aid and using cardiac pacemaker;
- If there are equipment for calibration or testing;
- Pay attention to the interference immunity of other surrounding equipment. The user shall ensure that other devices used around are compatible, and this may need additional protective measures;
- The time for welding or other activities.

The scope of environment to be considered depends on the structure of the building and other possible activities. This scope may exceed the boundary of the building itself.

### 2-3 Method to reduce emission

#### ■ Public power supply system

The arc welding equipment shall be connected to the public power supply system in the manner recommended by the manufacturer. If interference occurs, additional preventive measures shall be taken, for example, to add a filter in the public power supply system. For stationary-mounted arc welding equipment, it is necessary to consider the shielding problem of its power supply cable (metal tubes or other equivalent methods can be used for shielding). The shielding shall guarantee electrical continuity. The shielding layer shall also be connected to the housing of welding power to guarantee good electrical contact between them.

#### ■ Maintenance of arc welding equipment

Routine maintenance of the arc welding equipment shall be done in the manner recommended by the manufacturer. When the welding equipment is running, all the inlets, auxiliary openings and cover plates on the equipment shall be closed and properly tightened. The arc welding equipment shall not be modified in any form unless the corresponding changes and adjustments are allowed in the Manual. Especially, the spark gap of the arc-initiating device and arc stabilizer shall be adjusted

#### ■ Welding cable

The welding cable shall be as short as possible and close to each other, close to or close to the floor line.

#### ■ Equipotential overlap

It is necessary to pay attention to the overlapping of all metal objects in the surrounding environment. Overlap of metal object with work piece will increase the risk of work. When operators touch metal object and electrodes at the same time, they may be struck by electric shocks. Operators shall be insulated from all these metal objects.

■ Ground of workpiece

Considering the electrical safety or the position and size of workpiece, the workpiece, such as the hull or the building steel frame, may not be grounded. The connection between the workpiece and the ground may, but not always, reduce the emission. Therefore, it is necessary to prevent the increase of electrical shock or damage of other electrical equipment caused by the grounding of the workpiece. When necessary, the workpiece shall be connected to the ground directly. However, in some countries, direct grounding is not allowed, it can only be realized with appropriate capacitance according to the provisions of the country.

■ Shielding

To shield the surrounding equipment and other cables selectively can reduce the electromagnetic interference. For special applications, it can be considered to shield the whole welding area.

## Installation of welding machine

### 3-1 Installation environment

- It shall be placed in indoor environment with no direct sunlight, no rain, low humidity, less dust and ambient air temperature varying from -10°C to +40°C.
- The ground inclination shall not exceed 15°.
- No wind is allowed at the welding station, if any, shield is needed.
- It shall be confirmed that a space at least 20cm shall be kept in front of and behind the welding machine to guarantee good air cooling circulation, and there shall be a space at least 10cm at the right and left side of the welding machine.
- When using water-cooled welding torch, inject pure water into the water-cooling machine and pay attention to freeze protection.

### 3-2 Quality of power supply voltage

- The waveform shall be standard sine wave, the effective value is 220V±10% and the frequency is 50Hz/60Hz.
- The unbalance degree of three-phase voltage =5%
- Technical parameter of power supply

### 3-3 Basic parameters

Specification of welding machine	MASTER-MIG 215DPP	MASTER-MIG 185DP
Rated input voltage	220V±10%	220V±10%
Rated input current (A)	35A	31A
Rated output capacity	7.7KV.A	6.8KV.A
Output no-load voltage (V)	69V	69V
Rated load succession rate	30%	35%
Power factor COSφ	0.73	0.73
Efficiency η	85%	85%
Outline dimension (mm)	490*220*375	490*220*375
Net weight (kg)	13	13

### ■ Coating manual welding parameters(MMA Mode)

Specification of welding machine	MASTER-MIG 215DPP	MASTER-MIG 185DP
Rated input current (A)	20 ~ 180A	20 ~ 160A
Arc-initiating time (HOTT)	0 ~ 205	0 ~ 160
Arc-initiating time (HOTI)	0 ~ 160A	
Arc-initiating time (HOTT)	0 ~ 99ms	
Arc characteristics (SLOP)	Cc constant current mode	
	Cp constant power mode	
	1~20A slow-decrease characteristic	
VRD	ON/OFF	

### ■ Unitary gas shielded arc welding parameters(SYNC MIG)

Specification of welding machine	MASTER-MIG 215DPP	MASTER-MIG 185DP
Rated input current (A)	60 ~ 200A	60 ~ 185A
Material selection	Fe CO <sub>2</sub> , Fe Ar82 , AlMg5 Ar AlSi5 Ar , E308 Ar98	Fe CO <sub>2</sub> , Fe Ar82 AlSi5 Ar , AlMg5 Ar
Welding wire diameter (DIAM)	0.8 , 1.0 , 1.2	
Operation mode (TRIG)	2T , 4T , S2T , S4T , Spot , Cpot	
Inductance (Forc)	-90% ~ 50%	
Burn-back time (Burn)	-90% ~ 90%	
Time for spot welding (Sptt)	0.1 ~ 9.9s	
Soft Starting Speed (StFd)	1 ~ 13m	
Spot welding stop time (Stop)	0.1 ~ 25.5s	
Preflow time of gas (Freg)	0 ~ 10s	
Postflow time of gas (Post)	0.1 ~ 50s	

### ■ Double pulse gas shielded arc welding(Twin Pulse)

Specification of welding machine	MASTER-MIG 215DPP	
Rated current (A)	20 ~ 170A	
Material selection	AlSi5 Ar , AlMg5 Ar	Fe Co2 , Fe Ar82 , E308 Ar98
Welding wire diameter (DIAM)	1.0 , 1.2	0.8 , 1.0
Operation mode (TRIG)	2T , 4T , S2T , S4T , Spot , Cpot	
Inductance (Forc)	-90% ~ 50%	
Burn-back time (Burn)	-90% ~ 90%	
Time for spot welding (Sptt)	0.1 ~ 9.9s	
Pulse frequency (Freq)	0.5 ~ 5.0H	
Duty ratio (Duty)	20% ~ 80%	
Pulse amplitude (Ip-p)	5% ~ 50%	
Basic arc length (PU)	-50% ~ 50%	
Peak arc length (BU)	-50% ~ 50%	
Soft starting speed (StFd)	1 ~ 13m	
Spot welding stop time (Stop)	0.1 ~ 25.5s	
Preflow time of gas (Freg)	0 ~ 10s	
Postflow time of gas (Post)	0.1 ~ 50s	

### ■ Single pulse gas shielded arc welding(Pulse MIG)

Specification of welding machine	MASTER-MIG 215DPP		MASTER-MIG 185DP	
Rated current (A)	20 ~ 170A		20 ~ 160A	
Material selection	AlSi5 Ar AlMg5 Ar	Fe CO2, Fe Ar82 E308 Ar98	AlSi5 Ar AlMg5 Ar	Fe CO2 Fe Ar82
Welding wire diameter(DIAM)	1.0 , 1.2	0.8 , 1.0	1.0 , 1.2	0.8 , 1.0
Operation mode ( TRIG )	2T , 4T , S2T , S4T , Spot , Cpot			
Peak current amplitude (Forc)	-99% ~ 50%			
Burn-back time (Burn)	-90% ~ 90%			
Time for spot welding (Sptt)	0.1 ~ 9.9s			
Soft starting speed (StFd)	1 ~ 13m			
Spot welding stop time (Stop)	0.1 ~ 25.5s			
Preflow time of gas (Freg)	0 ~ 10s			
Postflow time of gas (Post)	0.1 ~ 50s			

Note: Some of the parameters in the table above can only be used in specific functions.

## 4-1 Control and interface

■ The controls and interfaces on front and rear panels of welding machine are shown in Fig. 1.

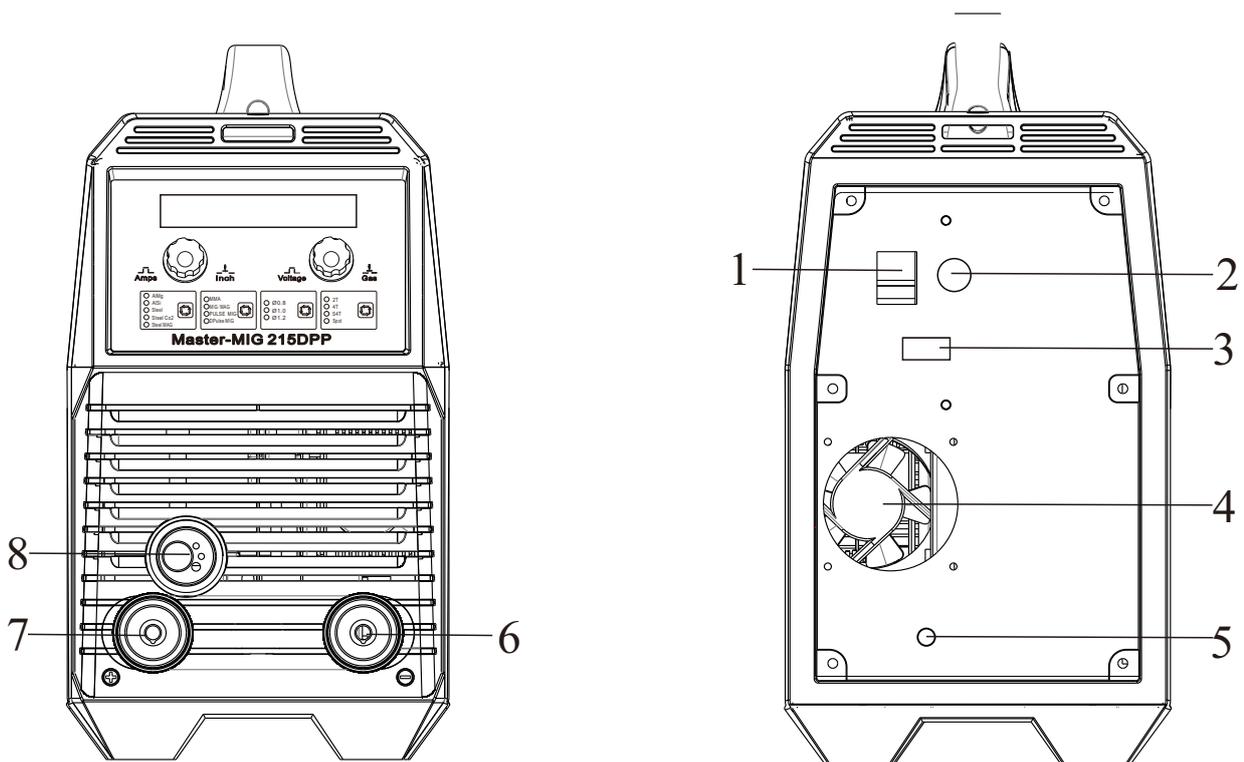


Fig. 1

- (1) Rocker switch
- (2) Power cord
- (3) Gas cylinder heating interface
- (4) Fan
- (5) Gas interface
- (6) Output socket of welding machine (-)
- (7) Output socket of welding machine (+)

## 4-2 Guidance for device connection

- Use grounding cable to connect the to-be-weld workpiece to the output socket (l) of welding machine.
- Use positive welding cable to connect welding cable socket of wire feeder to the output socket (+) of welding machine.
- Use control cable to connect control socket on rear panel of wire feeder to the feeding control socket on rear panel of welding machine.
- Use gas pipe to connect wire feeder to gas regulator or proportioner.
- The heating cable of CO<sub>2</sub> regulator shall be connected to the heating power socket on the rear panel of welding machine.
- Connect the input three-phase cable to the distribution board and the ground wire shall be grounded reliably.
- Close the automatic air switch on the distribution box.

After the completion of the above work, install the accessories of the supporting wire feeding system and load the wire. Select corresponding wire diameter and material on the control panel of the welding machine and switch in the specified protective gas for the wire material. Turn the voltage knob to the standard position, turn the current knob to obtain the required current, and then you can get the appropriate welding specification and start welding.

For detailed functions and operations, please see relevant sections of this Manual.

## 5-1 Description of Operation Panel Functions

This welding machine has two kinds of operation interfaces: current setting and parameter setting.

### ■ Current setting interface

The welding machine will automatically enter the current setting interface after starting up, and will also automatically enter the current setting interface during welding.

#### ( 1 ) Current and voltage adjustment

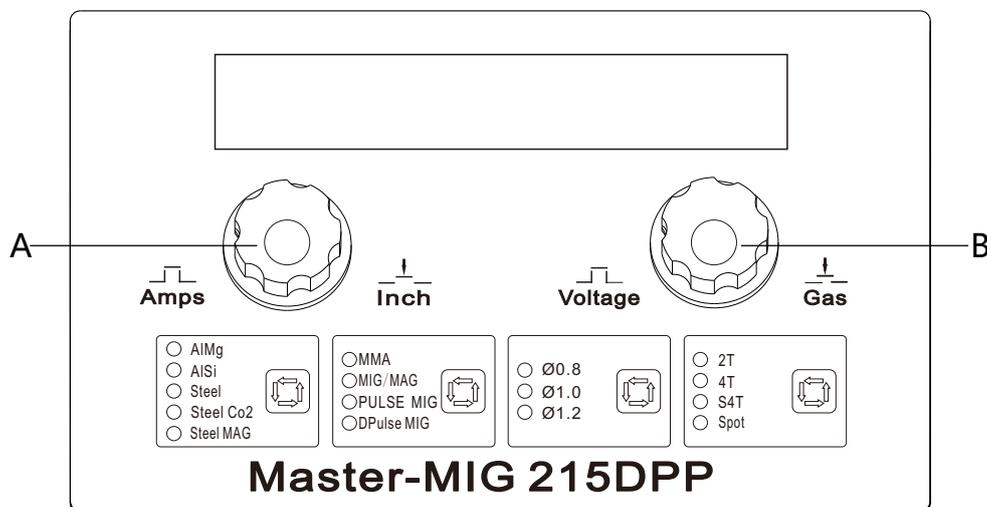
Knob A is used to adjust current, and Knob B is used to adjust voltage. There are two modes to display the set voltage: percentage and voltage value. Press Knob B to switch the two display modes. 100% represents the difference from the standard voltage; 0% represents the standard voltage; 10 % means that the voltage is 10 % higher than the standard voltage, and so on.

#### ( 2 ) Wire inspection

Press Knob A to start wire inspection, and gradually increase the speed to the set value.

#### ( 3 ) Gas detection

Press the Knob B to start gas detection, and loose to stop.



MASTER-MIG 215DPPSeries Operation Panel

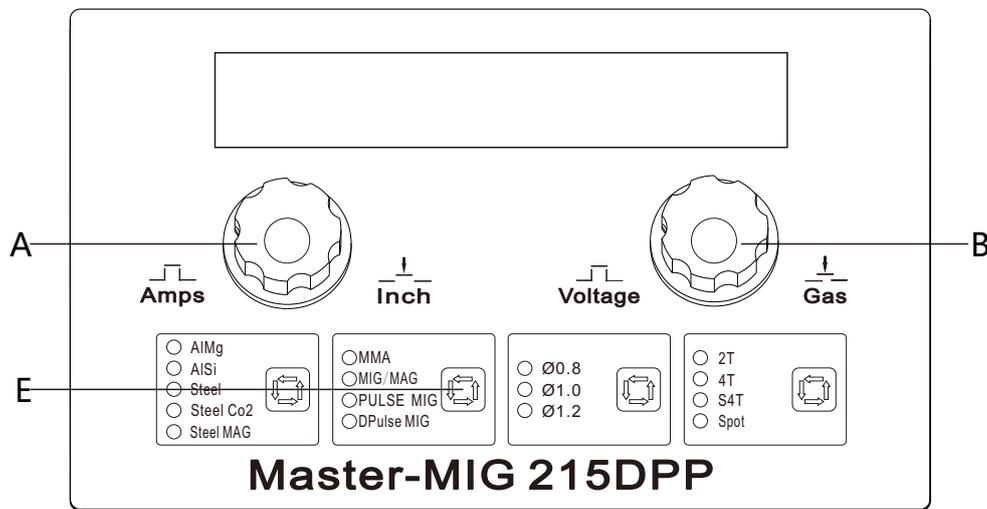
## Parameter setting interface

Press and hold Knob A and Knob B simultaneously in the current setting interface to enter the parameter setting interface. Press any button in this interface to return to the current setting interface. Other parameters can also be adjusted in this interface: press Knob A to select parameters, and Knob B to adjust parameter values.

### ( 1 ) Select welding mode

As soon as you enter the parameter setting interface, the current welding mode will be displayed.

Use Key E to adjust the welding mode. See Table-1 for various welding modes. This welding machine supports up to 14 welding modes, depending on the specifications of the product ordered by the user. Users can also purchase passwords later to add welding modes.



MASTER-MIG 215DPPSeries Operation Panel

Table-1

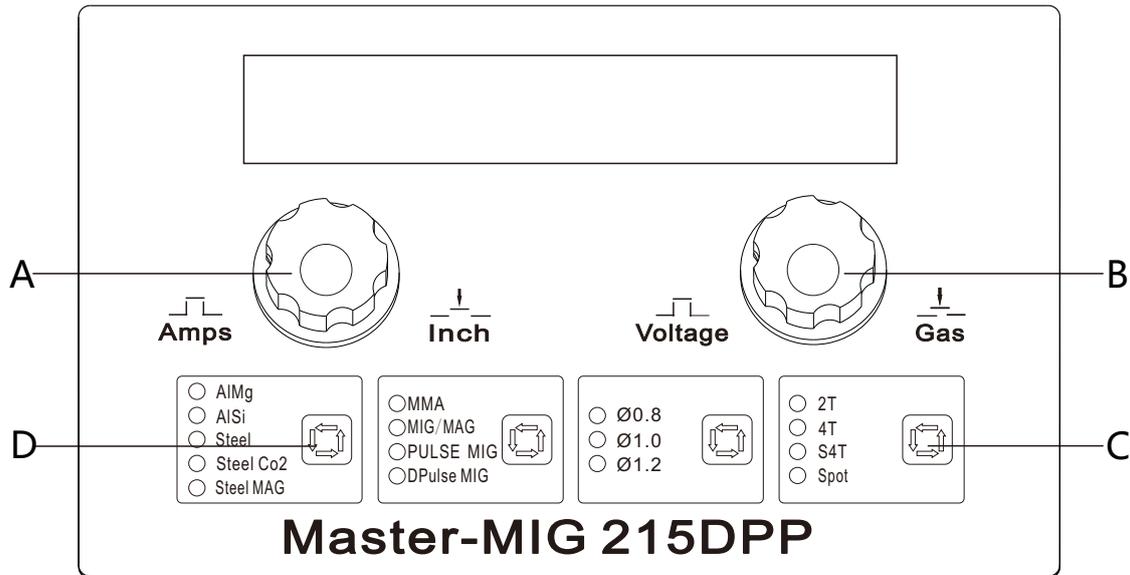
Code	Abbreviation	Name of welding mode
FastPulse	FMIG	High-speed pulse gas shielded arc welding
PulseMIG	PMIG	Pulse gas shielded arc welding
FastTwin	Ftwi	High-speed dual-pulse gas shielded arc welding
TwinPulse	Twin	Dual-pulse gas shielded arc welding
FastArc	Farc	High-speed gas shielded arc welding
MIG/MAG	YMIG	Gas shielded arc welding
FastUp	F-UP	High-speed internal welding
MMA Mode	MMA	Coating manual welding
FastRoot	Root	High-speed root welding
TIG Mode	TIG	DC argon arc welding (pulling and striking arc)
FastCold	Cold	High-speed cold welding
PulseTIG	PTIG	Pulsed argon arc welding
SYNC MIG	MIG	Unitary gas shielded arc welding
CarbonArc	Carc	Carbon arc air gouging

■ Select welding materials

When the welding mode is displayed, adjust the left knob clockwise to display the current welding material, and press Key D to adjust the welding material. See Table-2 for various welding materials. This welding machine supports up to 19 welding modes, depending on the specifications of the product ordered by the user. Users can purchase passwords to add welding materials.

■ Select wire diameter

When the welding material is displayed, adjust Knob A clockwise to display the current wire diameter, e.g. "SIZE 1.0"; press Key C to adjust the wire diameter.



MASTER-MIG 215DPPSeries Operation Panel

Table-2

Code	Abbreviation	Name of welding mode
Fe CO <sub>2</sub>	FeCO	Carbon steel CO <sub>2</sub>
Fe Ar82	FeA8	Carbon steel Ar 82%+CO <sub>2</sub> 18%
Fe Ar92	FeA9	Carbon steel Ar 92%+CO <sub>2</sub> 8%
Al Ar	Al	Pure aluminium Ar
AlMg4.5Ar	AlM4	Aluminum-magnesium welding wire ( ER 5183) Ar
AlMg5 Ar	AlMg	Aluminum-magnesium welding wire ( ER 5356) Ar
AlSi5 Ar	AlSi	Aluminium-silicon welding wire (ER 4043) Ar
CuSi3 Ar	CuSi	Silicon-bronze welding wire Ar
CuAl8 Ar	CuAl	Aluminum-bronze welding wire Ar
CuSiAr98	CuS9	Silicon-bronze welding wire Ar 98%+CO <sub>2</sub> 2%
CuAlAr98	CuA9	Aluminum-bronze welding wire Ar 98%+CO <sub>2</sub> 2%
E308Ar98	E308	Stainless steel welding wire (ER 308) Ar 98%+CO <sub>2</sub> 2%
E316Ar98	E316	Stainless steel welding wire (ER 316) Ar 98%+CO <sub>2</sub> 2%
RutilFlux	Ruti	Acid flux-cored wire Ar 82%+CO <sub>2</sub> 18%
BasicFlux	Basi	Basic flux-cored wire Ar 82%+CO <sub>2</sub> 18%
MetalFlux	Meta	Iron dust flux-cored wire Ar 82%+CO <sub>2</sub> 18%
CrNiFlux	CrNi	Stainless steel welding wire Ar 82%+CO <sub>2</sub> 18%
ER2319Ar	2319	Aluminum-copper welding wire Ar
FeCO <sub>2</sub> 09	Fe09	Carbon steel0.9mm CO <sub>2</sub>

■ Adjust other parameters

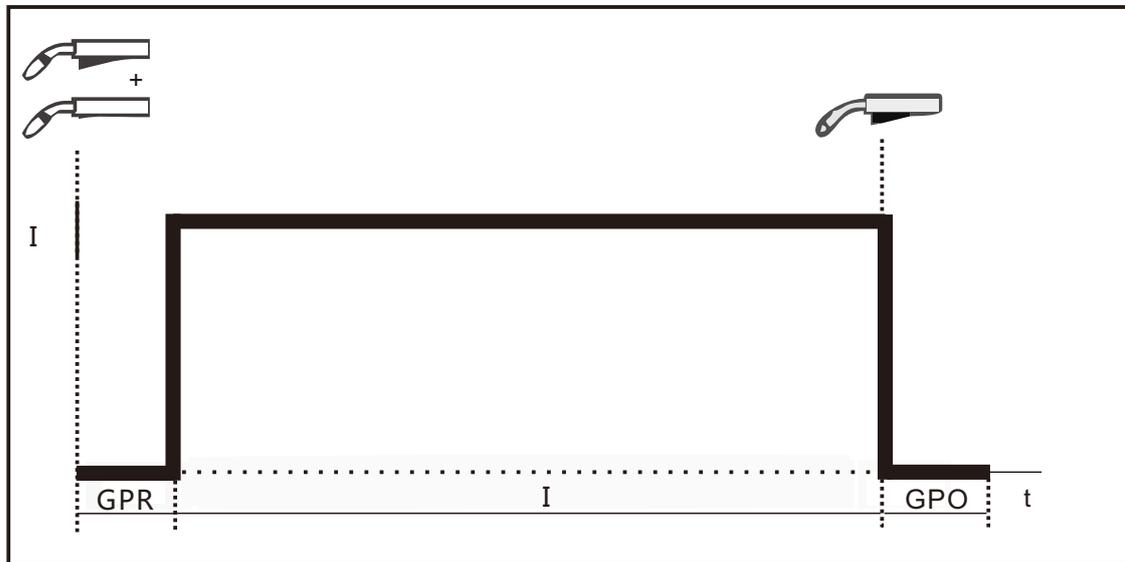
Other parameters can also be adjusted in this way: press Knob A to select parameters, and Knob B to adjust parameter values. See parameter codes in Table 3.

Table-3

Code	Abbreviation	Name of welding mode
Size	Welding wire diameter	Support 3 wire diameters: 0.8, 1.0, and 1.2
Mode	Operation Mode	Support 6 gun switch modes: 2T, 4T, S4T, S2T, spot welding and continuous spot welding
EndI	Extinguishing arc current	The function is to fill the arc crater, for S4T and S2T
HotI	Initial current	The function is to increase the heat input at the beginning of welding, for S4T and S2T
Burn	Burn-back time	It is used to adjust the effect of small ball cutting at the end of welding.
Hott	Initial time	The initial current duration is only for S2T.
Endt	Extinguishing time	Extinguishing arc current duration is only for S2T.
Slop	Transition time	The time for switching of the two currents (e.g. the initial current and the welding current); characteristic selection for manual welding: CC constant current, CP constant power ( for cellulose ), 1 - 20 slow descent
Sptt	Time for spot welding	Duration of spot welding
Freq	Pulse frequency	Frequency of dual-pulse gas shielded, high-speed dual-pulse gas shielded and high-speed vertical position welding
Freq	Pulse frequency	Frequency of dual-pulse gas shielded, high-speed dual-pulse gas shielded and high-speed vertical position welding
Duty	Duty ratio	Duty ratio of dual-pulse gas shielded, high-speed dual-pulse gas shielded and high-speed vertical position welding
Ip-p	Pulse amplitude	Peak current amplitude of dual-pulse gas shielded and high-speed dual-pulse gas shielded welding
HotU	Initial arc length	Initial current length
PU	Peak arc length	Peak current arc length
BU	Basic arc length	Background current arc length
StFd	soft starting	Soft start feeding rate
VRD	Low/no-load	Manual welding VRD switch
Stop	Stop time	Time interval to stop welding during continuous spot welding
Preg	Preflow of gas	Gas Preflow Time
Post	Postflow of gas	Gas Postflow Time
EndU	Extinguishing arc length	Extinguishing arc length
FORC	Arc force	Gas shielded welding refers to inductance; pulse gas shielded arc welding refers to the peak current amplitude; manual welding refers to arc force

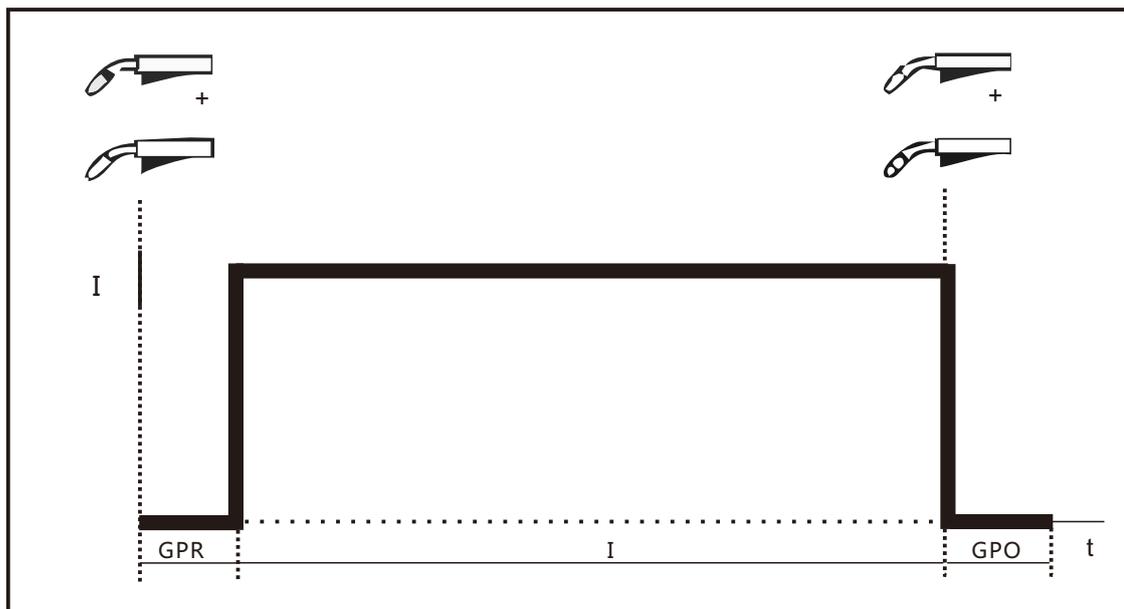
■ Operation Mode

2T operating instructions: Press the gun switch to start gas supply, wait for the gas preflow time before arcing to the set current, release the gun switch for arc extinguishing and gas postflow.



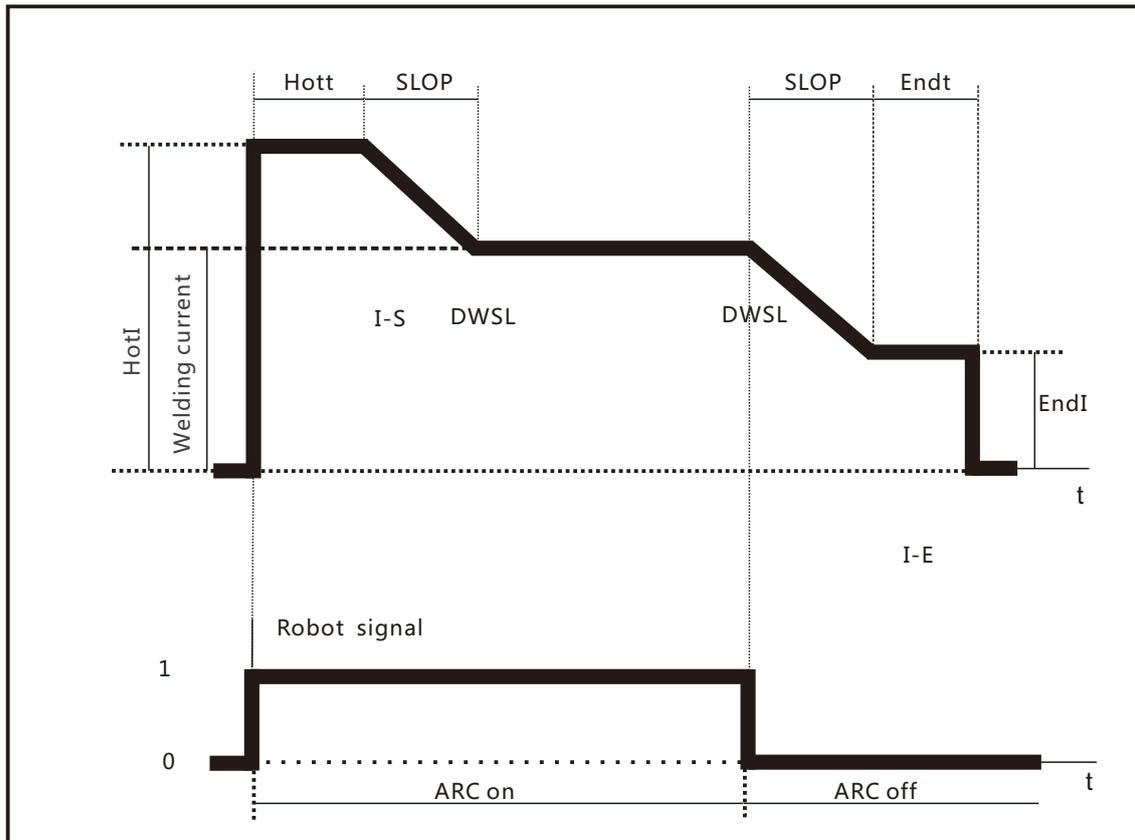
2T Operation Mode

4T operating instructions: Press (and release) the gun switch to start gas supply, wait for the gas preflow time before arcing to the set current. Press the gun switch once again for arc extinguishing and gas postflow.



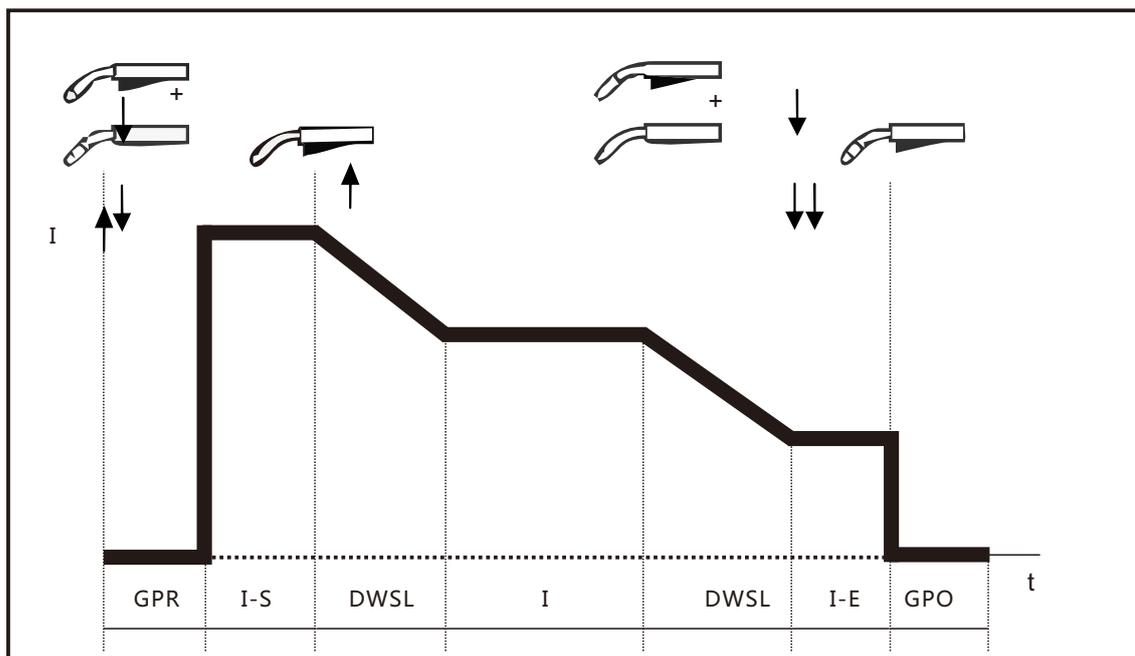
4T Operation Mode

S2T operating instructions: Press the gun switch to start gas supply, wait for the gas preflow time before arcing to the initial current, wait for the initial time before increasing to the set current gradually and the time for gradual increase is SLOP; release the gun switch and the set current will change to the extinguishing arc gradually, wait for the arc extinguishing time before arc extinguishing and gas postflow.



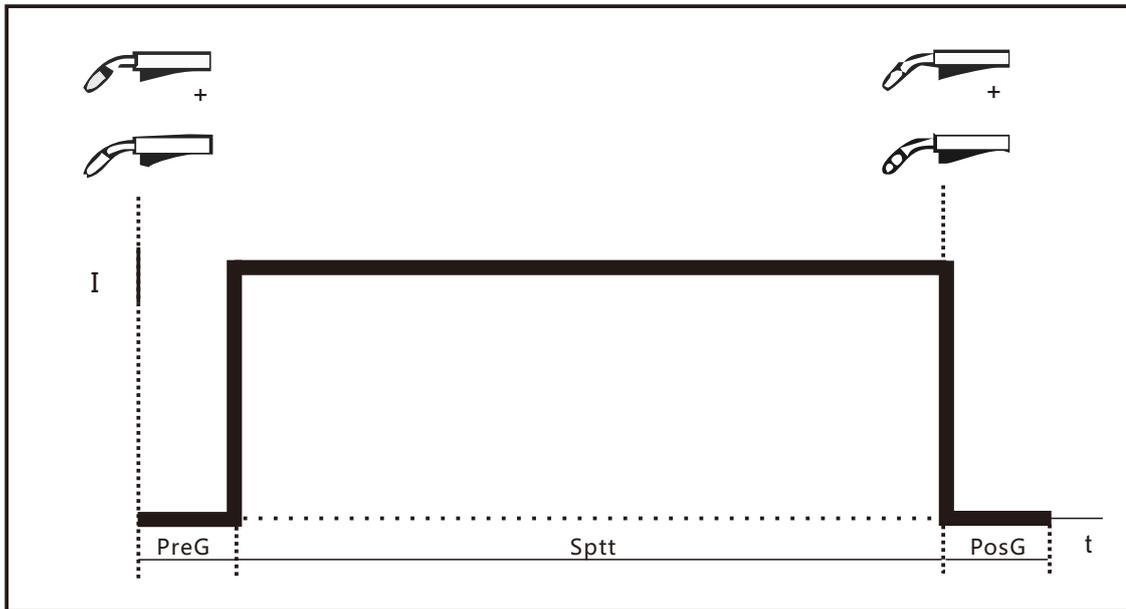
S2T Operation Mode

S4T operating instructions: Press the gun switch to start gas supply, wait for the gas preflow time before arcing to the initial current, wait for the initial time before increasing to the set current gradually and the time for gradual increase is SLOP; release the gun switch and the set current will change to the extinguishing arc gradually, wait for the arc extinguishing time before arc extinguishing and gas postflow.



S4T Operation Mode

SPOT (spot welding) operating instructions: Press the gun switch to start gas preflow to arc striking to the set current, wait for the spot welding time for arc extinguishing and gas postflow. If you release the gun switch before the spot welding time, the arc will be extinguished immediately and gas will post flow.



Spot Welding Operation Mode

PreG in the figure is the gas preflow time, PosG is the gas postflow time, HotI is the initial current, EndI is the extinguishing current, WeldI is the setting current, Hott is the initial time, Endt is the extinguishing time, SLOP is the gradual change time, and Sptt is the spot welding time.

CPOT (continuous spot welding) operating instructions: press the gun switch and the welding machine will start intermittent spot welding. The spot welding time is Sptt and the intermediate stop time is STOP. Release the gun switch to stop welding.

#### ■ Error display

Characters will be displayed directly in case of errors. There are only two kinds of displays: 1 overheating: Over Temp; and 2 over time: Over Time

### 6-1 Wire feeder mechanism

The wire feeder mechanism is single -drive, as shown in the figure below.

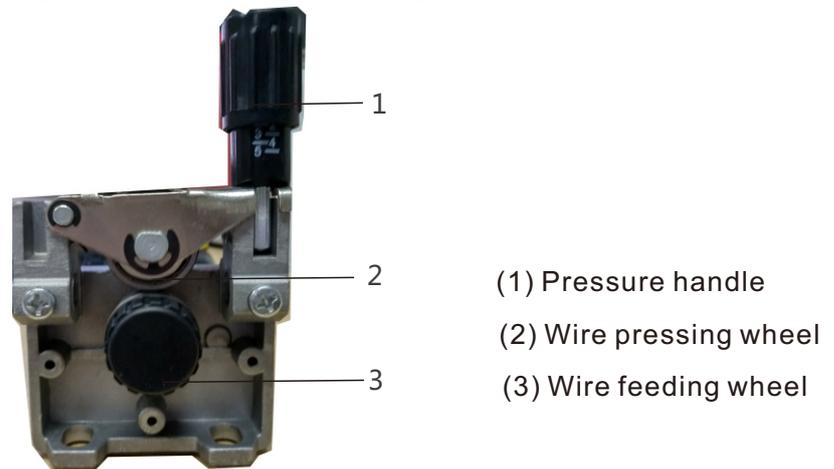


Fig-6-1

### 6-2 Specification and installation of wire feeding wheel

The wire feeding pressure scale is located on the pressure handle, and the pressure relations are different for welding wires made of different materials and with different diameters, as shown in the Table 6-2 and Figure 6-2. The values in the table are for reference only, and the actual pressure adjustment specifications must be adjusted according to the welding torch cable length, welding torch type, wire feeding condition and welding wire type.

- Type 1 is suitable for the hard welding wire, such as those made of solid cored carbon steel and stainless steel.
- Type 2 is suitable for the hard welding wire, such as those made of solid cored carbon steel and stainless steel.
- Type 3 is suitable for the flux cored welding wire.

Use the pressure handle to adjust the wire feeding wheel pressure, so as to feed the welding wire into the conduit and to allow the welding wire with a little braking force while coming out of the contact tube, which will avoid slipping on the wire feeding wheel.

Note: The excessive pressure will make the welding wire flattened and the coating damaged, and will result in the rapid wear of wire feeding wheel and the increased resistance of wire feeding.

Table 6-2

Wire feeding wheel type	Welding wire diameter		
	$\phi$ 0.8	$\phi$ 1.0	$\phi$ 1.2
1	3	3	2.5
2	1.5	1.5	1.5
3	—	—	2

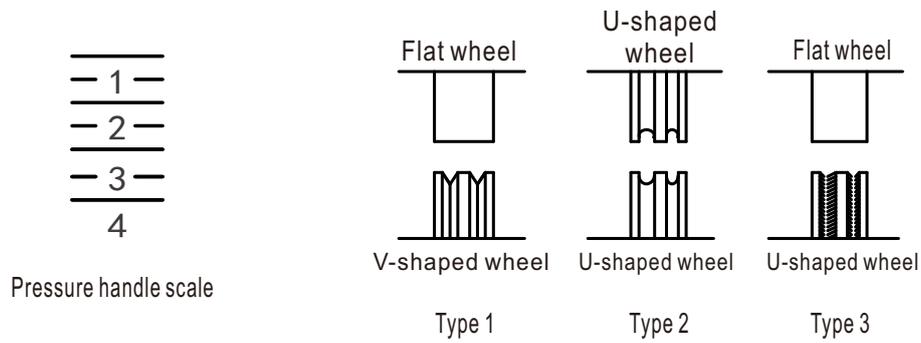


Fig6-2

### 6-3 Braking and Adjustment of Wire Reel

Use the screw wrench to turn the braking force control screw (1) to adjust the braking force (as shown in Fig. 6-3); the braking force should be moderate. Adjust the braking force to an appropriate level so that the welding wire on the wire reel is not too loose, thus preventing the welding wire from scattering when the wire reel stops; the braking force cannot be too large, otherwise the motor load will be increased.

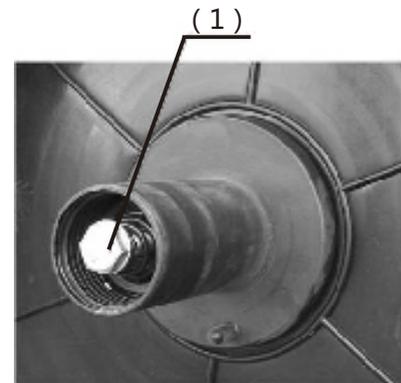


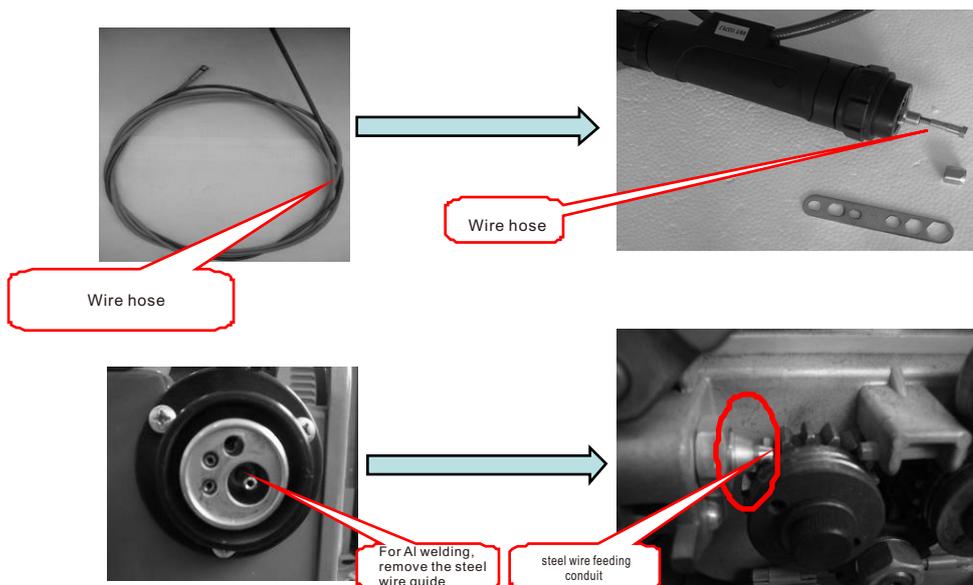
Fig6-3

## Installation of Welding Torch

### 7-1 Installation of Gas Shielded Arc Welding Torch

In order to ensure the smooth welding progress, please make sure that the wire feeding conduit and contact tube agree with the model of the welding torch. The wire feeding conduit is compatible with the diameter of all welding wires used and the type of welding wire. The wired hose is suitable for the hard welding wire, such as those made of solid cored carbon steel and stainless steel. The Teflon hose is suitable for the soft wire, such as those made of aluminum and its alloys and those made of copper and its alloys. When the wire feeding conduit is too tight or too loose, the resistance of wire feeding will be increased and thus the wire feeding will be unstable. Tighten the torch's quick connector to ensure there is no voltage drop on the contact surface. The pressure drop caused by loose contact will make the torch and the wire feeder heated.

- The wire feeding hose made of steel wire and its installation are shown in the figure below:



## Maintenance of welding machine

In principle, the maintenance of welding machine should be the responsibility of the company; the user can solve various problems encountered in use under the guidance of the company.

### 8-1 Precautions for use

- The enclosure upper cover shall be riveted with the equipment number plate, otherwise the internal components may be damaged.
- The welding cable and the output socket of welding machine shall be connected closely and reliably. Otherwise, the socket may be burned and the instability may be caused in the welding process.
- Avoid that the welding cable is contacted with the metal object on the ground to prevent the output short circuit of welding machine.
- Avoid damage and break of the welding cable and the control cable.
- Avoid that the welding machine is deformed due to impact, and never stack the heavy object on the welding machine.
- Ensure smooth ventilation.

### 8-2 Regular inspection and maintenance of welding machine

- Ask the professional maintenance personnel to deduct the welding source with the compressed air every 3-6 months, and pay attention to inspect whether the fastener inside the machine is loose.
- Frequently inspect whether the cable is damaged, whether the adjusting knob is loose and whether the component on the panel is damaged.
- Timely replace the contact tube and the wire feeding wheel, and frequently clean the wire feeding hose.

### 8-3 Welding machine troubles and trouble-shooting

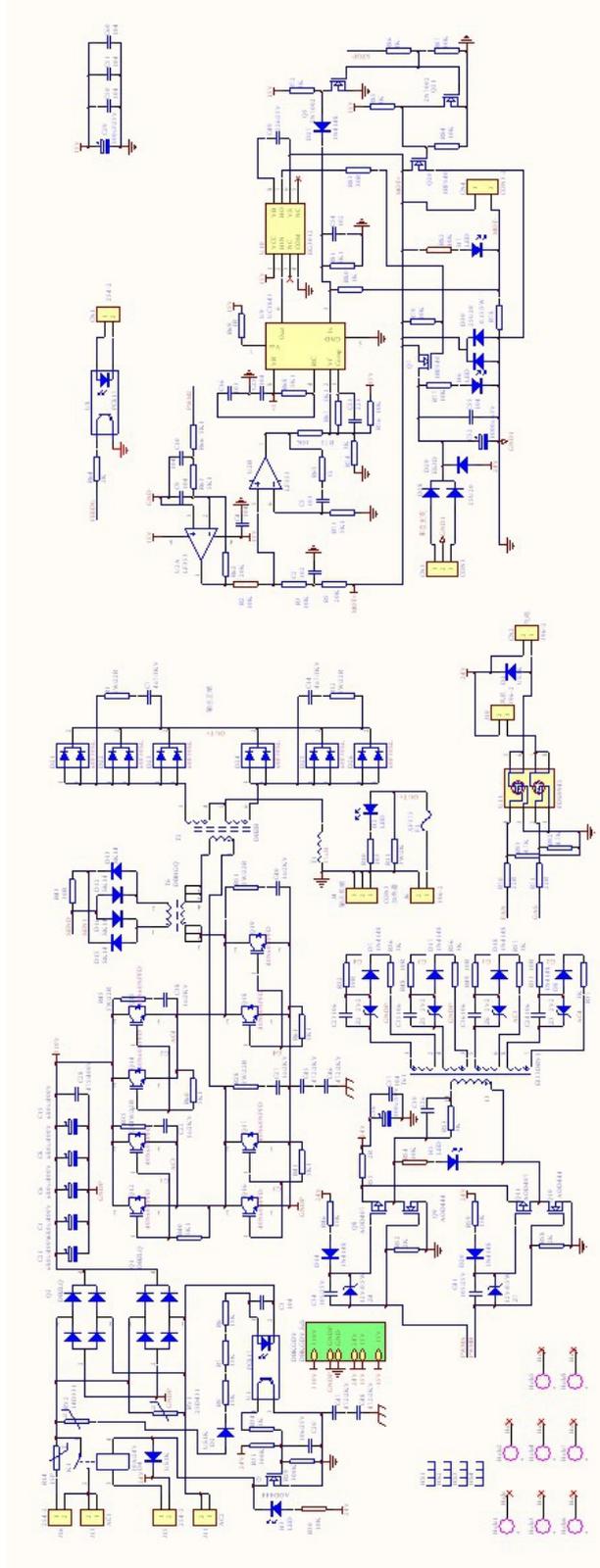
Before repair of the welding machine, inspect the followings:

- Whether the front panel state and the welding condition display of welding machine are correct, and whether the key and the knob function normally.
- Whether the line voltage of three-phase source is in the range of 220V-380V; whether the phase is deficient.
- Whether the input cable of welding machine power supply is connected correctly and reliably.
- Whether the grounding wire of welding machine is connected correctly and reliably.
- Whether the welding cable is connected correctly and is in good contact.
- Whether the gas circuit is in good condition, and whether the gas regulator or the proportioner functions normally.

**Notes: The maximum voltage inside the machine is up to 600V, so to ensure safety, never open the enclosure without permission. In maintenance, take proper safety protection measures like electric shock prevention. In installation of welding cable and replacement of welding torch accessories, turn off the power.**

### 9 Schematic diagram of main circuit

- Schematic diagrams of MASTER-MIG DPP series main circuit and wiring



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