

HG200DP (Double pulse)

To use this product correctly and safely

Please read this manual thoroughly before using, checking or repairing the product.



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This welding machine for industrial and professional use is in conformity with IEC974 International Safety Standard.

Hereby we state that we provide 6 months of guarantee for this welding machine since the date of purchase.

Please read and understand this instruction manual carefully before the installation and operation of this machine.

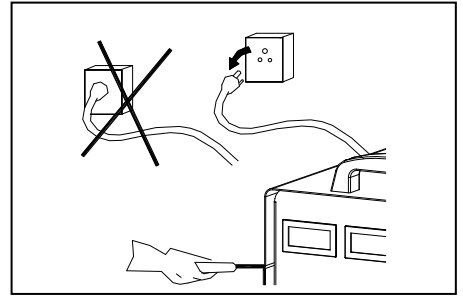
The contents of this manual may be revised without prior notice.

This instruction manual is issued in March 2021.

1. SAFETY

Welding and cutting is dangerous to the operator, people in or near the working area, and the surrounding, if the machine is not correctly operated. Therefore, the performance of welding/cutting must only be under the strict and comprehensive observance of all relevant safety regulations. Please read and understand this instruction manual carefully before the installation and operation.

- The switching of function modes is possibly damaging to the machine, while the welding operation is performed.
- Do not disconnect the electrode-holder cable with the machine, before the performance of welding.
- A safety switch is necessary to prevent the machine from electric-leakage.
- Welding tools should be of high quality.
- Operators should be qualified.



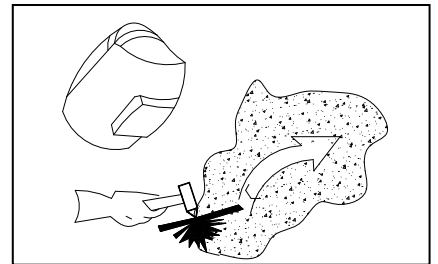
Electric shock: It could be fatal!

- Connect the earth cable according to standard regulation.
- Avoid all contact with live electrical parts of the welding circuit, electrodes and wires with bare hands. It is necessary for the operator to wear dry welding gloves while he performs the welding task.
- The operator should keep the working piece insulating from himself/herself.



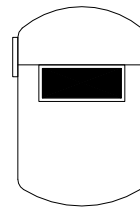
Smoke and gas generated while welding or cutting: harmful to people's health.

- Avoid breathing the smoke and gas generated while welding or cutting.
- Keep the working area well ventilated.



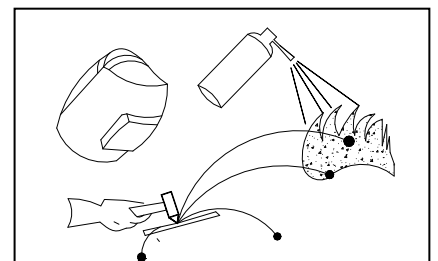
Arc rays: harmful to people's eyes and skin.

- Wear welding helmet, anti-radiation glass and work clothes while the welding operation is performed.
- Measures also should be taken to protect people in or near the working area.



Fire hazard

- The welding splash may cause fire, thus remove flammable material away from the working place.
- Have a fire extinguisher nearby, and have a trained person ready to use it.



Noise: possibly harmful to peoples' hearing.

- Noise is generated while welding/cutting, wear approved ear protection if noise level is high

Machine fault:

- Consult this instruction manual.



2. GENERAL DESCRIPTION

HG200DP adopts advanced semiconductor switching device IGBT module as the main power device, designed and manufactured by advanced inverter and control technology. 45kHz inverter frequency, improve the efficiency and power factor, the energy saving is significant, This is an inverter double pulse gas shielded welding machine, which can welding for low-carbon steel, low-alloy steel, high-strength steel, stainless steel, and aluminum alloys materials. Carry out all-round spot welding, butt welding, fillet welding, lap welding. Suitable for solid welding wire and stainless steel welding wire diameter range of $\phi 0.8$ - $\phi 1.0$, aluminum silicon and aluminum magnesium welding wire diameter range of $\phi 1.0$ - $\phi 1.2$. The gas shielded such as 100% Ar, 100% CO₂, 2%CO₂+98%Ar, 20%CO₂+80%Ar, etc. The advantages are high efficiency, energy saving, strong arc penetration, and small welding deformation.

- IGBT inverter technology, current control, high quality, stable performance;
- Closed feedback circuit, invariable voltage output, great ability of balance voltage up to $\pm 15\%$;
- Electron reactor control, stable welding, little splash, deep molten pool, excellent welding bead shaping;
- Welding voltage can be preset, and the voltmeter displays the preset voltage value when not welding.
- Both welding current and welding voltage can be observed at the same time.
- Burnback time is adjustable.
- Slow wire feeding during arc starting, remove the melting ball after welding, reliable arc starting;
- Wire feeding part is separated from the welding machine, wide welding operation range.
- Small-sized, light-weighted, easy to operate, economical, practical.

Unpacking your machine

When unpacking, inspect carefully for any damage that may have occurred during transit.

Check carefully to ensure all the contents on the list below have been received in good condition

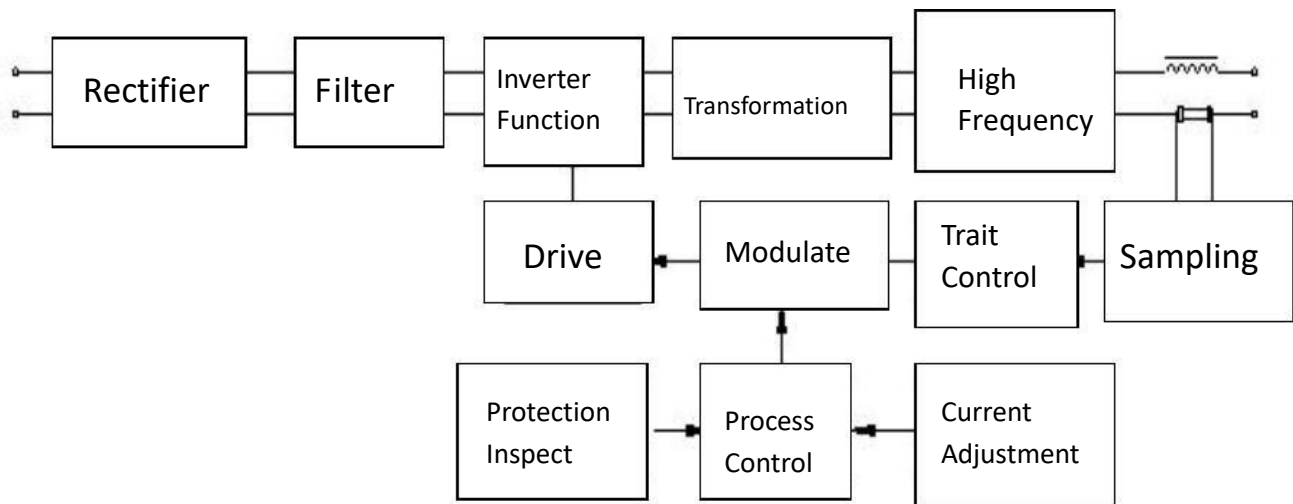
Included items:

No.	Description	Qty.	Picture
1	MIG Welder	1set	
2	Operator's Manual	1pc	
3	Electrode Holder	1pc	
4	Earth Clamp	1pc	
5	4m MIG torch	1pc	
6	Steel brush hammer	1pc	

Operating environment

Adequate ventilation is required to provide proper cooling for the MIG. Ensure that the machine is placed on a stable level surface where clean cool air can easily flow through the unit. The MIG has electrical components and control circuit boards which will be damaged by excessive dust

Block Diagram



3. MAIN PARAMETER

MODEL	HG200DP		
Power supply voltage(V)	1P, 230±10%		
Rated input capacity(KVA)	7.7		
Rated Frequency(Hz)	50/60		
Function	MIG	MMA	Pulse MIG
Output current range(A)	50~200A	20~180A	30~170A
Output voltage range(V)	16.5~24V	20.8~27.2V	15.5~22.5V
Duty cycle(%, 40°C 10min)	60		
No load voltage(V)	60		
Efficiency(%)	85		
Power factor	0.92		
IP	21S		
Insulation class	H		
Cooling way	FAN & AIR		
Dimension(mm)	535x230x370		
Wire diameter	Solid/Stainless Steel		Al-Si/Al-Mg
	φ 0.8~1.0		Φ1.0~1.2
Net weight(kg)	14.4		

Note : The welding duty cycle is the percentage of actual continuous welding time that can occur in a ten minute cycle. For example: 15% at 200amps- this means the welder can weld continuously at 200 amps for 1.5 minutes and then the unit will need to be rested for 8.5 minutes.

The duty cycle can be affected by the environment in which the welder is used. In areas with temperatures exceeding 40 °C, the duty cycle will be less than stated. In areas less than 40 °C, higher duty cycles have been obtained

All tests on duty cycles have been carried out at 40 °C with a 50%. So in practical working conditions the duty cycles will be much greater than those stated above.

4. Structure of welder

4.1. Environment to Which the Product Is Subject

- * The surrounding temperature range: when welding: -10 ~ + 40 °C,
During transport or in storage: -25 ~ + 55 °C.
- * Relative humidity: when at 40 °C: ≤50%,
when at 20 °C: ≤90%.
- * The dust, acid and erodible materials in the air can not exceed the amount required by the norm (apart from the emissions from the welding process). No violent vibration at the job site.
- * Altitude no more than 1,000m.
- * Keep from raining when it is used outdoor.

4.2. Welder's Structures

HG200DP use the movable carton like structures: The upper part in the front is equipped with a welding current regulation knob, power indicator light (green), abnormal indicator light (yellow), while the lower part is furnished with the torch quick connector and “-” quick connector. The back side is installed with power switch, gas valve connection , cooling fan, power source lead-in wire, breaker. On the top there is a handle for the convenient of easy transport.

4.3 Torch's Construction



Please note: It's important for your welding

HG200DP, can weld alloy steel , aluminum silicon, aluminum magnesium alloy and carbon steel. For these welding wires of different materials and different hardness, we consider more for the user when choosing the welding gun.

1. When welding for aluminum and aluminum alloy, include Al-Si, Al-Mg.

Please use the most original setting of the welding torch. The welding torch has a plastic wire feed tube. Its advantage is smoother. It will not cause damage to aluminum welding wire and its alloy welding wire. At the same time, you must ensure that the wire feeder roller is U-shaped!

2. When welding for stainless steel and carbon steel, include Fe, CrNi

Please replace the wire feeding hose of the welding torch with a metal spring tube. Since the stainless steel and solid welding wire are too hard, it will cause damage to the plastic hose, it must be replaced. At the same time, please note that replacing the wire feeder roller is V-shape.

4.4 Sign & Pictures Illustration

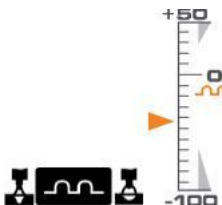
 DP MIG: Double pulse MIG


 P MIG: Single pulse MIG

 MIG: DC usual MIG

 MMA : Arc welding

- Al Ar** Aluminum wire and 100% argon gas
- AlSi Ar** Aluminum Silicon and 100% argon gas
- AlMg Ar** Aluminum Magnesium and 100% argon gas
- Fe CO₂** Carbon steel and 100% CO₂ gas
- Fe Ar82** Carbon steel and 80% argon gas
- CrNiAr98** Stainless steel and 98% Argon gas.


 Inductance Control

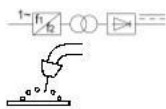
 Pulse wave and pre-post gas setting

φ0.8 **φ1.0** **φ1.2** Wire diameter selection


↕ 4T **↕ 2T** **↕ SPOT** **↕ CSPOT** Wire feeding method


↕ S4T **↕ S2T** Special 2T/4T, include arcing starting and ending current, working time.

 Single phases AC power source

 Single phase stillness transducer--- transformer---rectifier

 DC current

 Inductance control (soft or hard)

 Wire feeding speed and current (synergic matching)

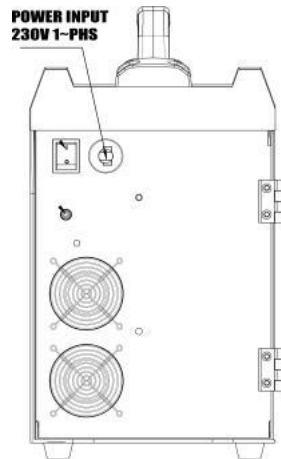
5. INSTALLTION

5.1. Welder's Placement.

- * The dust, acid and erosible dirt in the air at the job site can not exceed the amount required by the norm.
- * The welder must be installed in the place where it can not be exposed to sun and rain. Also it must be stored in less humid place with the temperature range at -10~40°C.
- * There should be 50 cm space about for the welding machine to have good ventilation.
- * Apparatus to exclude wind and smoke should be equipped if the inside aeration is not sound

5.2. Connection between Welder and Power Source (See the Input Connection Sketch)

Connect the power source cable at the back board of the welder into the single phase 230 vlotage power network with breaker; 380 voltage power sources is strictly prohibited to the welder which will severely damage the welder, otherwise the user should take the consequences for it.



Power supply configure of a welder:

Notice: The melting current of the fuse is 1.2~1.5 times of its rated cur

Item	HG200DP
Circuit breaker(A)	≥40
Fuse(Rated current)	40
Knife Switch(A)	≥40
Power cord(mm ²)	≥3.0

5.3 The installation and connection of MIG Welding

Connection and installation of the wire feeder

1. When welding for aluminum and aluminum alloy, include Al-Si, Al-Mg

When welding aluminum and other soft materials, the hose inside the welding wire liner is a plastic hose and its length can reach the inside of the wire feeder directly, as shown in the figure.



2. When welding for stainless steel and carbon steel, include Fe, CrNi

When welding materials such as stainless steel and carbon steel the hard wire, the wire liner in the welding gun is a metal spring tube, and it must be replaced with a metal tube which packed with metal spring tube.

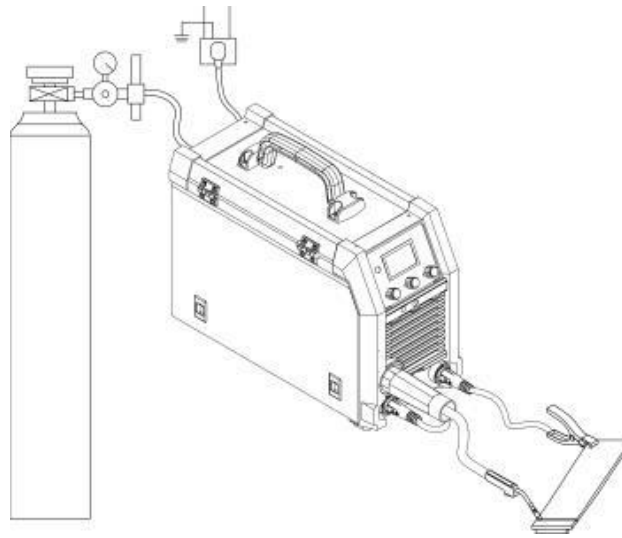
* Select suitable wire according to welding technology. The wire diameter must be matched with drive roll, wire guide pipe liner and contact tip.

* Open the lid of wire reel on the wire feeder put "Wire Coil" into "Wire Reel" on the wire feeder. Attention: Wire end under the "Wire Reel", opposite wire feeder.

* There is damping screw device in the "Wire Reel" (hex head screw will be seen when open the lid). Pull the wire reel with hand when adjust. If resistance is over large, may adjust damping bolt: screw clockwise will enlarge the value and vice versa.

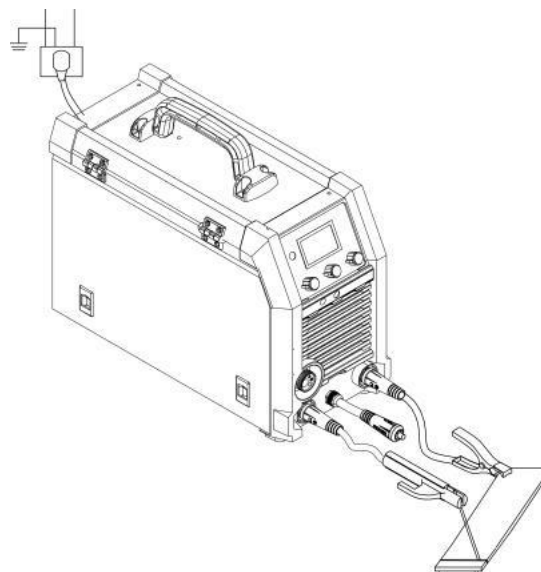
* Lead wire into "Wire Guide Pipe" of wire feeder, align wire with roll groove through "Drive Roll", re-lead "Socket Tip" and press "Drive Roll". (If more welding wire is needed, it will be done after switching on the power.)

3. For the welding torch of the workpiece and the machine, please refer to the figure below for the output cable connection

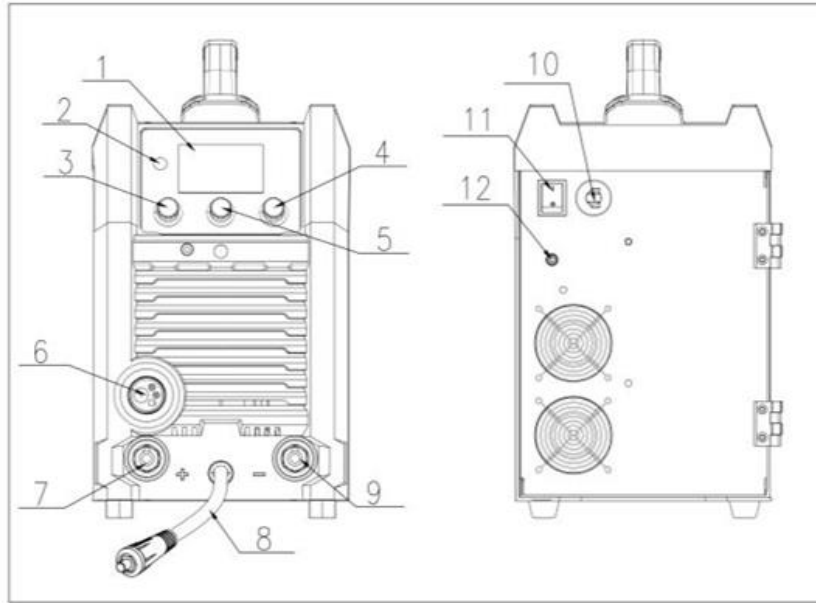


5.4 The installation and connection of STICK welding

MMA connect workpiece and the machine, please refer to the figure below for the output cable connection.



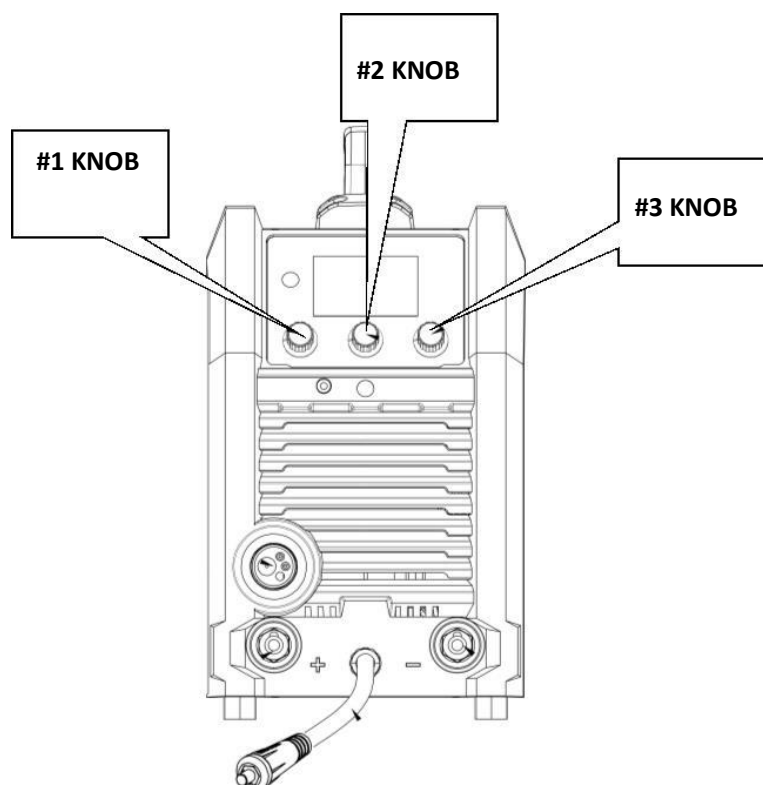
6. OPERATOIN



1. LCD Color screen	2. Homepage	3. Current adjustment
4. Inductance control ! Operate interface data, press it will gave cursor, rotating the knob will move the cursor position	5. Voltage adjustment(only MIG) ! When operate interface data, rotating the knob will adjust the value under the cursor.	6. Eu-torch connector
7. Positive pole	8. Air joint	9. Negative pole
10. Power cable	11. Power switch	12. Cooling fan



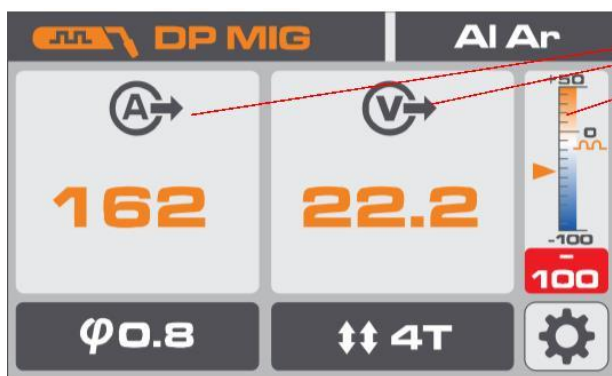
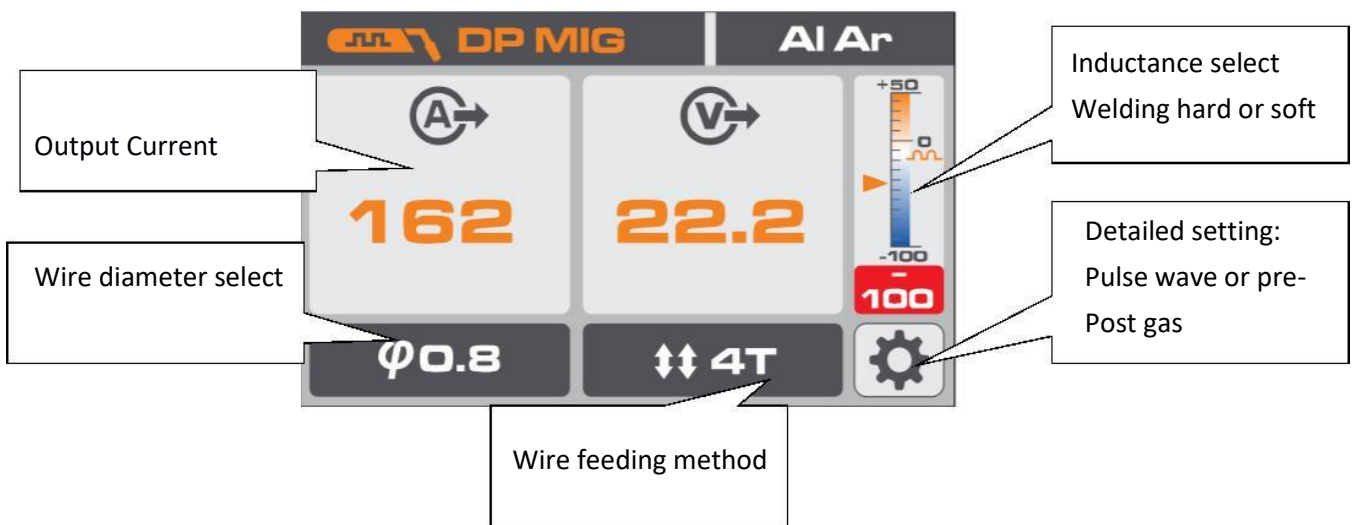
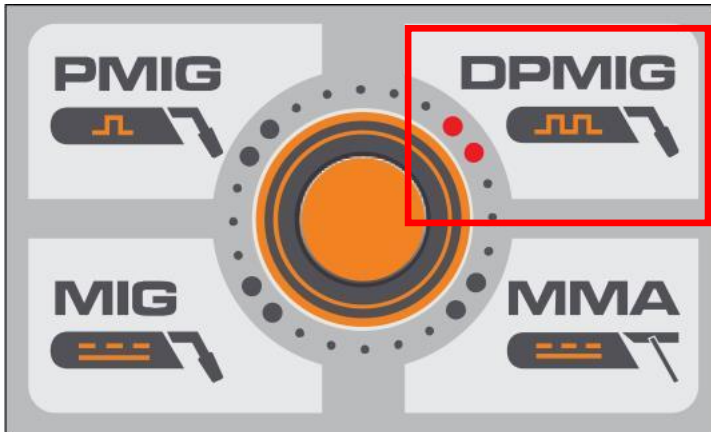
ATTENTION : The protection class of HG200DP Series Inverter MIG/STICK Welder is IP21S. It is forbidden to put in a finger or insert a round bar less than 12.5 mm (metal bar in particular) into the welder. No heavy force can be employed on the welder.



6.1 DP MIG welding steps

1 Select DP MIG function

Rotate the above No.3 knob – the cursor to DP MIG position and press it.



When 1ST time into DP MIG function, knob of NO.#1 #2 #3 only have a simple function, rotate #2 adjust for voltage, rotate #3 adjust for inductance.



Press #3, will have cursor.
Rotate #2, could adjust data under the cursor.

2 Select material and wire diameter, wire feeding method.

Press 3#knob, will have a cursor, when the cursor appears, only 3#2# can be operated, and the remaining knobs cannot be operated. If need adjust for current and voltage, inductance, need press 3# again to cancel the cursor.

When without cursor, 1# knob adjust for current, 2#knob for voltage, 3# knob for inductance.

Material and gas recommend.

Al - Ar **Al Ar**

AiSi - Ar **AiSi Ar**

Almg - Ar **AlMg Ar**

Fe - CO₂(carbon steel) **Fe CO₂**

Fe - Ar 82%(carbon steel) **Fe Ar82**

CrNi - Ar 98%(stainless steel) **CrNiAr98**

Wire diameter:

Al, AiSi, Almg 1.0~1.2mm

Fe, CrNi 0.8~1.0mm

3 Pulse wave adjustment

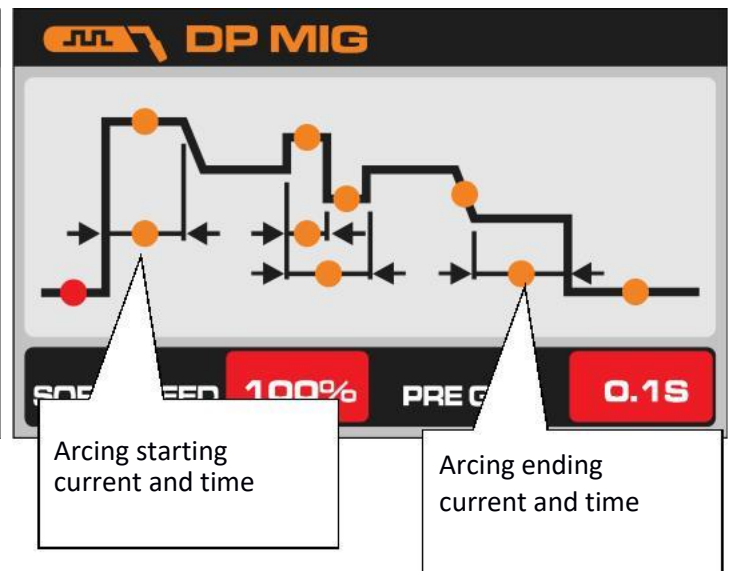
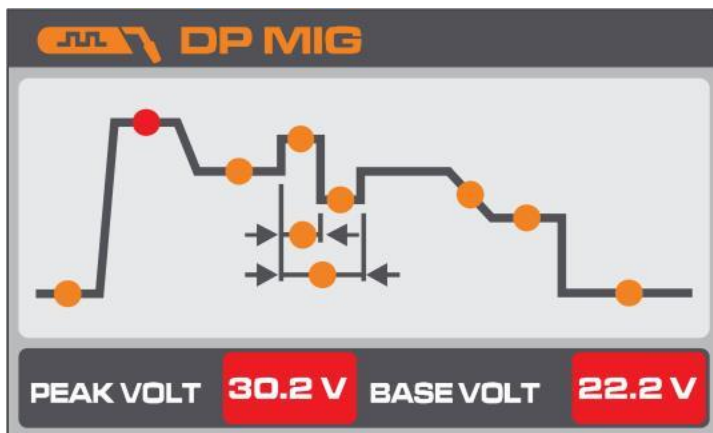
Rotate 3# to

, press 3# will going to pulse wave adjustment.

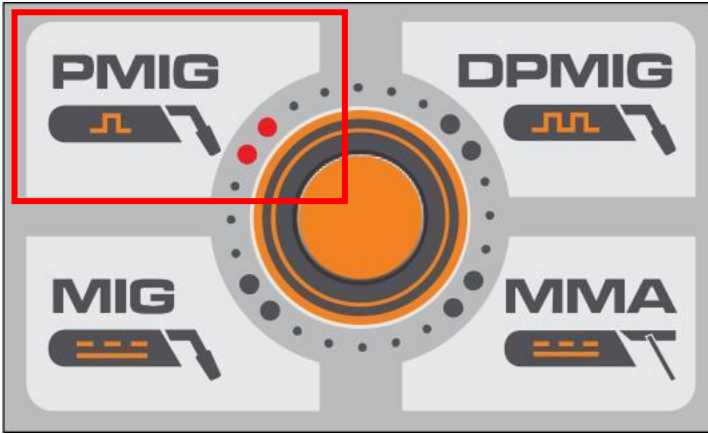
Rotate 3# for cursor, rotate 2# for data under the cursor.

-normal 2T/4T

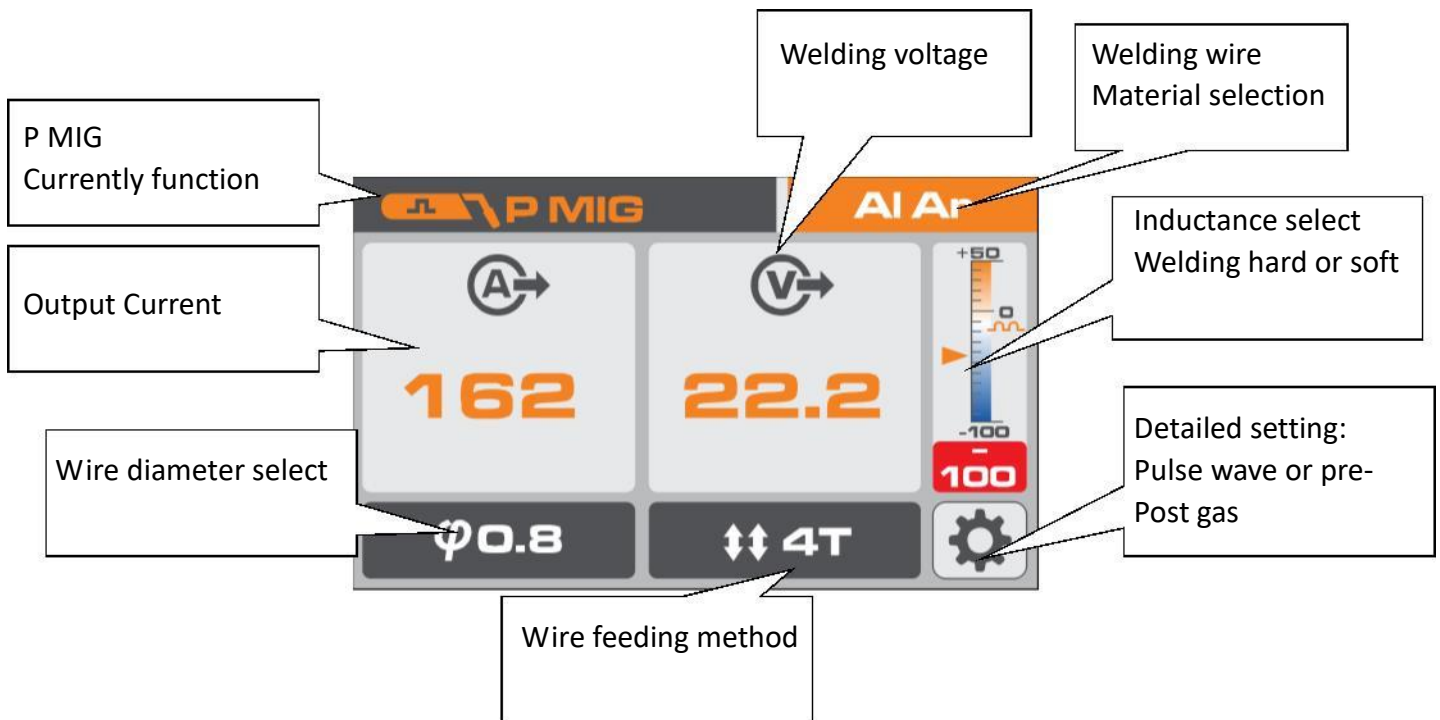
-S2T/S4T



6.2 P MIG welding steps



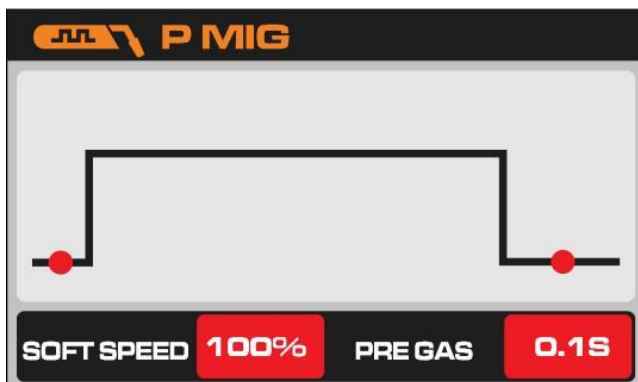
Same as DPMIG, rotate 3# knob to PMIG and press.



The operation mode of single-pulse MIG is the same as that of double-pulse MIG. Double-pulse or single-pulse welding can be selected according to the characteristics of the material and the welding method.

The only difference between the single pulse and the double pulse is that the single pulse is an analog pulse, the double pulse is the second pulse built on the analog pulse, which is adjustable, and the first pulse-the single pulse cannot be adjusted.

PMIG WAVE – Because the analog pulse cannot be adjusted, the wire feed speed can only be adjusted, pre and post gas time.



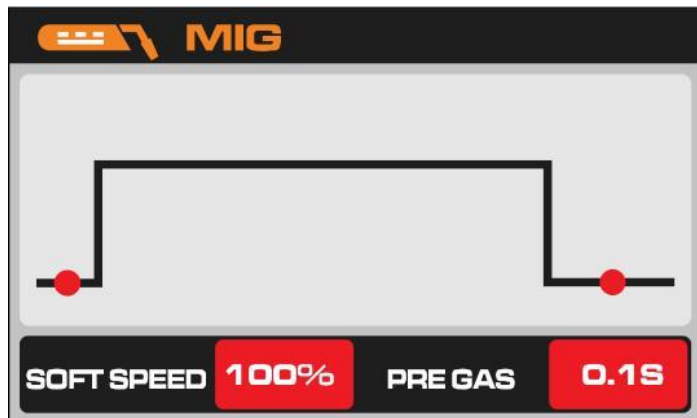
6.3 USUAL MIG welding steps

Press 3# knob for cursor, rotate 3# knob for position , rotate 2# knob for date adjust under the cursor.

When without cursor, 1# knob adjust for current, 2#knob for voltage, 3# knob for inductance.



Normal MIG have no pulse, only adjust for wire feeding speed, pre and post gas time.

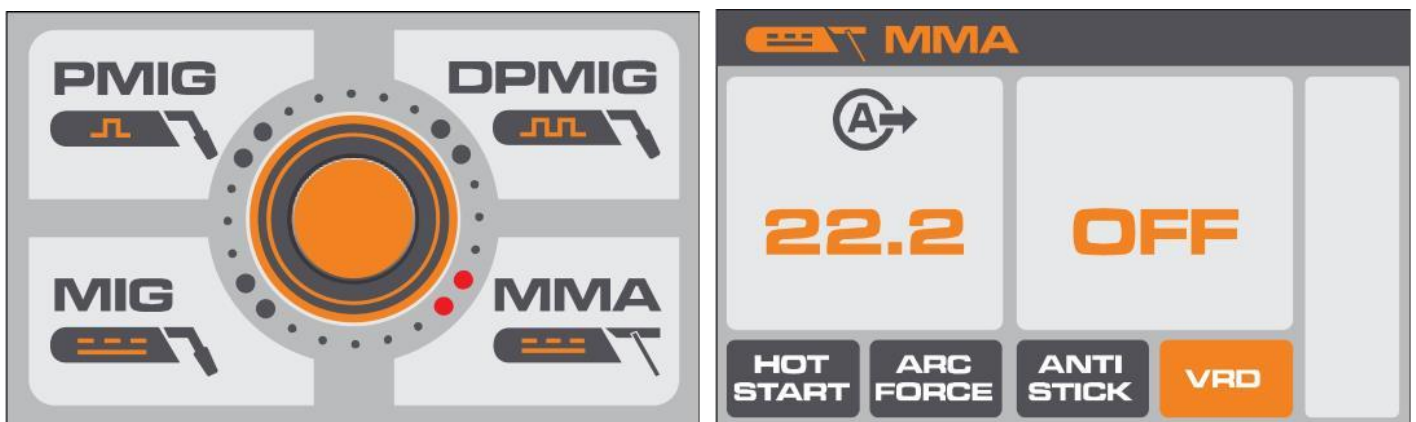


6.4 MMA welding steps

Rotate 3# knob to MMA and press.

Then we will going to MMA operation interface.

MMA operation interface – Rotate 1# knob for current, Press 3# knob for cursor, rotate It for position, rotate 2#knob for date under the cursor.



7. TROUBLE SHOOTING

No	Breakdown	Analysis	Solutions
1	Display overheat	Voltage is too high ($\geq 15\%$)	Switch off power source; Check the main supply; Restart welder when power recovers to normal state.
		Voltage is too low ($\leq 15\%$)	
		Bad power ventilation lead to over-heat protection	Improve the ventilation condition.
		Circumstance temperature is too high.	It will automatically recover when the temperature low down.
		Using over the rated duty-cycle.	It will automatically recover when the temperature low down.
2	Wire feeding motor don't work	Potentiometer not in the proper status	Change potentiometer
		Nozzle is blocked up	Change nozzle
		Feed roller is loosen	Firm the bolts
3	Cooling Fan not working or turning very slowly	Switch broken	Replace the switch
		Fan broken	Replace or repair the fan
		Wire broken or falling off	Check the connection
4	Arc is not stable and splash is large	Too large contact tip makes the current unsteady	Change the proper contact tip or roller
		Too thin power cable makes the power astaticism	Change the power cable
		Too low input voltage	Enhance the input voltage
		Wire feeding resistance is too large	Clean or replace the liner and the torch cable had better in the line direction.
5	arc can't be pilot	Earth cable break	Connect earth cable
		Work piece has much greasy dirty or rusty stain	Clean greasy dirty or rusty stain
6	No shielded gas	Torch is not connected well	Connect the torch again
		Gas pipe is pressed or blocked up	Check gas system
		Gas system rubber pipe break	Connect gas system and bind firmly
7	Couldn't feeding wire	Material wire different with wire liner and wire feeding roller.	Make sure Al or Al-Si, Al-Mg, must change to plastic wire liner, use U type roller. CrNi and solid wire must change to metal spring tube, use V type roller.
8	Spatter too much	Check for correct gas shielded	Change to correct one.

8. SEMI-AUTOMATIC WELDING SPECIFICATION TABLE

8.1 I-shaped butt welding specification table

Plate thickness (mm)	Wire diameter (Φ)	Root space G (mm)	Welding current (A)	Welding voltage (V)	Welding speed (cm / Minute)	Gas flow (L/ Minute)	Layers
0.8	0.8,0.9	0	60~70	16~16.5	50~60	10	1
1.0	0.8,0.9	0	75~85	17~17.5	50~60	10~15	1
1.2	0.8,0.9	0	80~90	17~18	50~60	10~15	1
1.6	0.8,0.9	0	95~105	18~19	45~50	10~15	1
2.0	1.0,1.2	0~0.5	110~120	19~19.5	45~50	10~15	1
2.3	1.0,1.2	0.5~1.0	120~	19.5~20	45~50	10~15	1
3.2	1.0,1.2	1.0~1.2	140~	20~21	45~50	10~15	1
4.5	1.0,1.2	1.0~1.5	140~	22~23	40~50	15	1
6.0	1.2	1.2~1.5	170~ 185	24~26	40~50	15~20	Positive 1 reverse 1
9.0	1.2	1.2~1.5	320~ 340	32~34	40~50	15~20	Positive 1 reverse 1

8.2 Flat head T-shaped welding

Plate thickness (mm)	Bead length (mm)	Wire diameter (mm \varnothing)	Welding current (A)	Welding voltage (V)	Welding speed(cm/ Minute)	Gas flow(L/ Minute)
1.0	2.5~3	0.8,0.9	70~80	17~18	50~60	10~15
1.2	3~3.5	0.9,1.0	85~90	18~19	50~60	10~15
1.6	3~3.5	1.0,1.2	100~	18~19.5	50~60	10~15
2.0	3~3.5	1.0,1.2	115~	19.5~20	50~60	10~15
2.3	3~3.5	1.0,1.2	130~	19.5~21	50~60	10~15
3.2	3~3.5	1.0,1.2	150~	21~22	45~50	15~20
4.5	4.5~5	1.0,1.2	180~	23~24	40~45	15~20
6	5~5.5	1.2	230~	25~27	40~45	15~20
8.9	6~7	1.2,1.6	270~	29~35	40~45	20~25
12	7~8	1.2,1.6	300~	32~35	35~40	20~25

8.3 Flat angle welded joint (thin plate)

Plate thickness (mm)	Wire diameter (mm \varnothing)	Welding current (A)	Welding voltage (V)	Welding speed (cm/minute)	Distance between base metal of contact tip (mm)	Gas flow (l/minute)
0.2	0.8,0.9	60~70	16~17	40~45	10	10~15
1.2	0.8,0.9	80~90	18~19	45~50		10~15
1.6	0.8,0.9	90~100	19~20	45~50		10~15
2.3	0.8,0.9	100~130	100~130	45~50	10	10~15
	1.0,1.2	120~150	120~150	45~50	10	10~15
3.2	1.0,1.2	150~180	150~180	35~45	10~15	10~15
4.5	1.2	200~250	200~250	40~45	10~15	10~15

8.4 Flat angle welded joint (thin plate)

Plate thickness (mm)	Wire diameter (mm \varnothing)	Welding current (A)	Welding voltage (V)	Welding speed (cm/Minute)	Distance between base metal of contact tip (mm)	Gas flow (l/Minute)
1.6	0.8,0.9	65~75	16~17	40~45	10	10~15
2.3	0.8,0.9	80~100	19~20	40~45	10	10~15
3.2	1.0,1.2	130~150	20~22	35~40	10~15	10~15
4.5	1.0,1.2	150~180	21~23	30~35	10~15	10~15

9. TRANSPORT & STORAGE

* Users should keep the packing materials with the machine to keep well storage during the long transportation. If the machine need transfer, the wooden case is required. The sign such as 'Lift' and 'Free of rain' should be labeled on the case.

* After the package has been opened, it is suggested to repack the product as per prior requirement for future storage and transport. (Cleaning job is required before storage and you must seal the plastic bag in the box for storage.)

* The machines should be free from rain and snow during transportation and storage. Keep notice of the warning sign on the packing box when load and unload. The warehouse should keep dry & ventilation and free from corrosive gas or dust.

The tolerable temperature ranges from - 25 ~ + 55 °C and the relative humidity can not be more than 90%.