Arc point MIG 300 Double pulse welding machine

Instructions for use

Content

This welding machine is designed for industrial and professional use according to the IEC97 international safety standards.

This welding machine is hereby warranted for one year from the date of purchase. Please read the instructions carefully before installing and using the machine.

The distributor is entitled to modify the content of the description.

Please contact us with questions!

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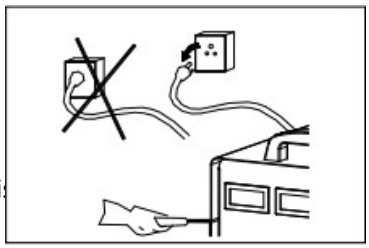
1. Security

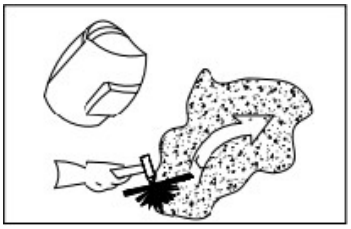
Welding and cutting are dangerous operations! If not done carefully, it can easily cause accidents and injuries to the operator and others in the vicinity. Therefore, operations must be carried out only in strict compliance with safety measures! Read these instructions carefully before starting and operating the machine!



- Do not switch to any other mode during welding, as this may cause the machine to malfunction.
- The safety switch protects the machine from electrical interlock.
- Disconnect the working cables from the machine when not in use.
- The main switch ensures that the appliance is completely de-energi
- Welding accessories and accessories should be damage-free and of high quality.
- Only qualified personnel should use the device!

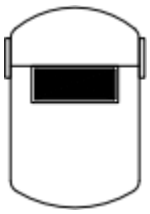
Electric shock can be fatal!

- Earthing cable - if necessary, because the network is not earthed - to the connected according to the instructions!
- Do not touch any conductive parts in the welding circuit, such as electrodes or wire ends, with bare hands! When welding, the operator must wear dry protective gloves!
- Place the workpiece as far away from yourself and others as possible.



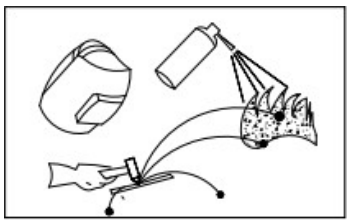
The gas and fumes produced during welding are harmful to health.

- Avoid inhaling fumes and gases generated during welding.
- Ensure that the work area is properly ventilated.



The radiation from burning the arc is dangerous to the human eyes and skin.

- Wear a welding shield and protective clothing when welding.
- The safety requirements also apply to people near the work area apply.



Fire risk

- Sparks from welding can cause a fire, so any flammable materials from the work area
- Have a fire extinguisher nearby and have a trained person who knows how to use it.

The resulting noise can cause hearing loss!

- Ear protection is recommended due to the noise generated during weld

In case of failure:

- See the description
- Contact your dealer or service centre

2. General description

The welding machine is an inverter power source with external, unvariable output voltage, designed with advanced IGBT technology. With the high power IGBT component, the inverter converts the DC voltage, which is corrected from the input 50Hz/60Hz AC voltage to the high frequency 20KHz AC voltage; as a result, the voltage is converted and corrected.

The features of the machine are:

- IGBT inverter technology, regulator, high quality, stable performance
- Closed feedback circuit, unchanging output voltage, great voltage balancing

up to ±15%

- Digital controller, stable welding arc, low spark, deep fusion, excellent weld seam formation
- designed for welding material thicknesses greater than 0,8 mm
- Slow wire feed , melting ball removal after welding is complete, reliable arc start
- Applicable to a wide range of welding tasks

Unpacking a gas shielded arc welding machine:
When unpacking, check for damage during transport. Check that all accessories are present and in perfect condition.

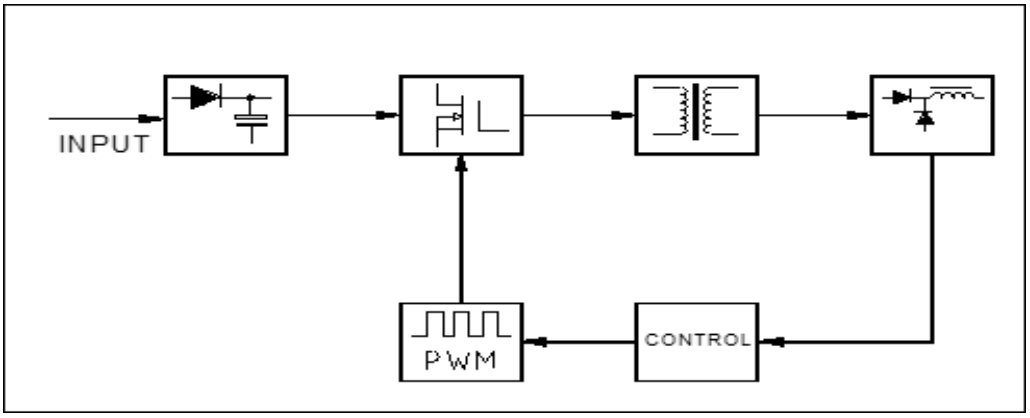
Accessories:

- Co working cable
- Spinning roller 4 pcs.
- Test cable

Operating environment:

Adequate ventilation is necessary for proper cooling of the MIG-300DP welding machine. Ensure that the machine is placed on a stable surface where clean cool air can circulate freely. The welding machine has electrical components and a control circuit panel. Deposited dirt can cause these to fail, so a clean working environment is required. Periodically clean the inside of the machine.

Block diagram



3. Main parameters

Model	MIG-300 P N LCD		
Power supply voltage (V)	Three phases 380±10%		
Rated input capacity (A)	7	6.1	5.3
Rated input current (KvA)	18	16	14
Output current range (A)	50-30 0	10-250	10-300
Function	MIG	MMA	TIG
Switch-on time (40°C 10 min)	\	\	\
	60% 300A	60% 250A	60% 300A
	100% 232A	100% 194A	100% 232A
No load voltage	78		
Efficiency	77%		
Performance factor	0.9		
IP	21S		
Insulation department	H		
Cooling path	Air		
Dimensions (mm)	950*560*860		
Wire diameter (mm)	0,8-0,9-1,0-1,2		Ø2,5,Ø3,2Ø4,0,Ø5,0
Net weight (kg)	42		

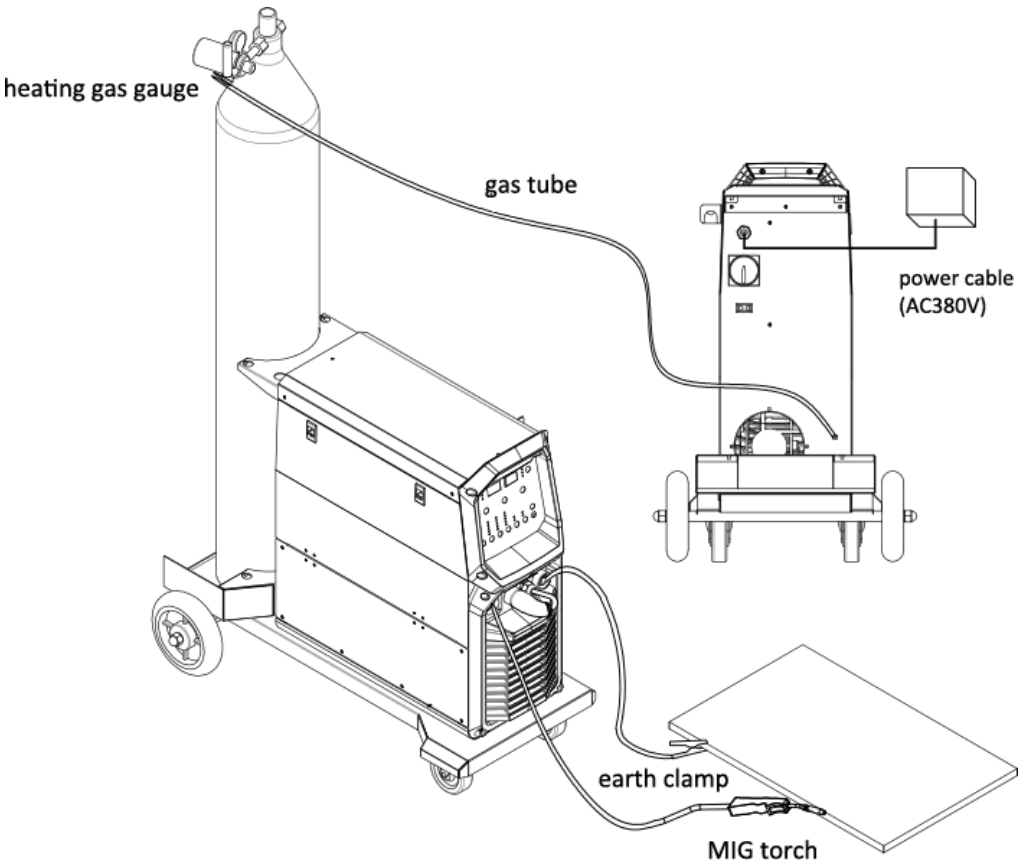
4. Setup and structure

Input wire connection
Connect the three-phase cable to the mains connection-distribution board (380 V)

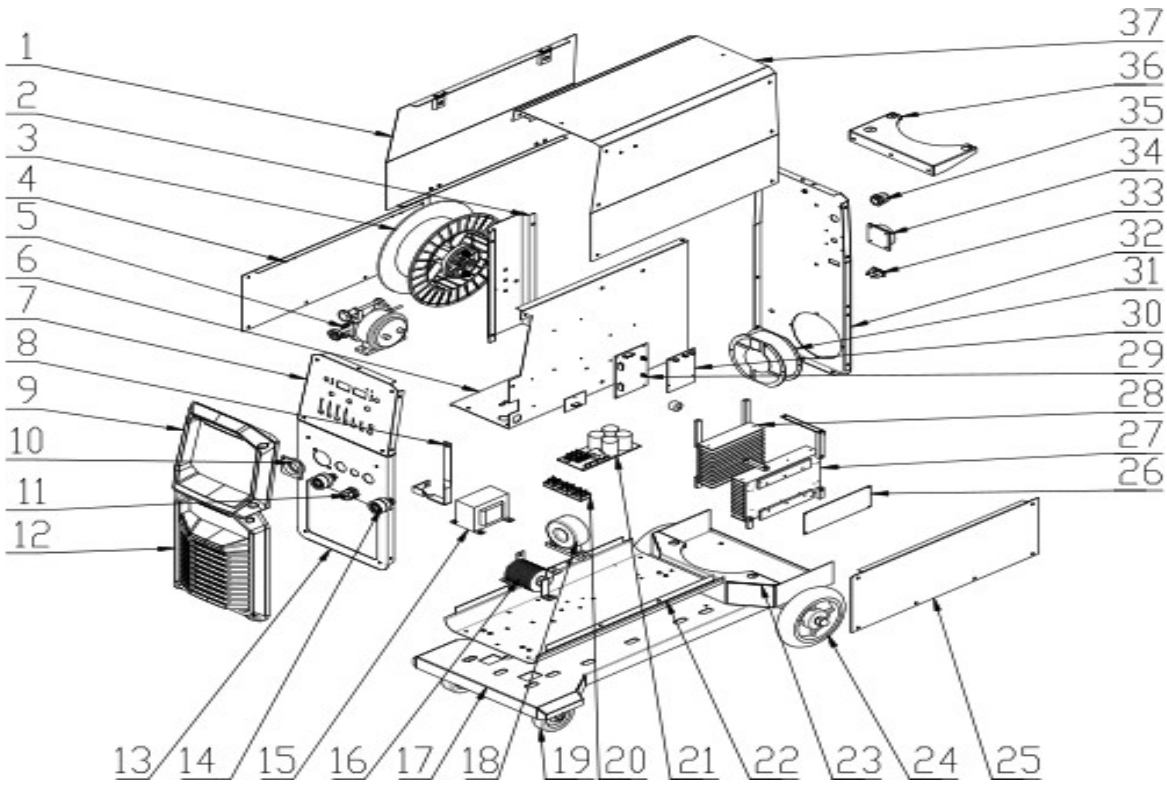
Output wire connection
Connect the gas tank (equipped with CO2 pressure regulator) and the gas connector to the gas hose.
- Attach the body cable to the negative output and the workpiece
- Connect the MIG working cable to the output connector
- Connect the wire feeder input cable to the positive terminal of the power source

Welding wire coil insertion

- Insert the wire coil into the wire dispenser holder, coil must be in line with the fixed coil on the holder with peg.
- Select the roller that matches the size of the wire (Note: for aluminium welds use a "U" shaped groove, for other types of welds use a "V" shaped groove).
- Loosen the nut on the wire pusher roller, thread the welding wire from the drum, into the guide tube, through the groove, into the outlet capillary tube. Avoid deformation of the wire due to high pressure.
- Release the wire by turning the reel counter-clockwise. To avoid unwinding the new coil, fix the top of the wire to the edge of the coil. Please cut this top off the cable.
- Press the "wire check" button for automatic wire threading



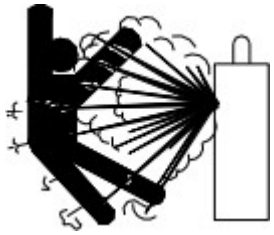
Structure



Number	Title	Number	Title
1	Side plate	**20**	Repair bridge
2	Stiffening plate	**21**	Power source panel
3	Huzal drum(optional)	**22**	Base plate
4	Side plate cover 1	**23**	Tray rail plate
5	Huzal dosing motor	**24**	Steering wheel
6	Cover	**25**	Side plate cover 2
7	Front metal plate (top)	**26**	Inverter board
8	Output interface piece	**27**	Inverter chiller
9	Front plastic plate (top)	**28**	Repair of heat sink ribs
10	Euro connector	**29**	Control board
11	Alternating socket	**30**	Leaderboard
12	Front plastic plate (bottom)	**31**	Fan
13	Front metal plate (bottom)	**32**	Rear metal plate
14	Quick connector	**33**	Gas tank internal socket
15	Frequency converter	**34**	Current switch
16	Output reactor	**35**	Cape Town
17	Tray	**36**	Gas tank support plate
18	Main transformer	**37**	Machine holder
19	Universal wheel		

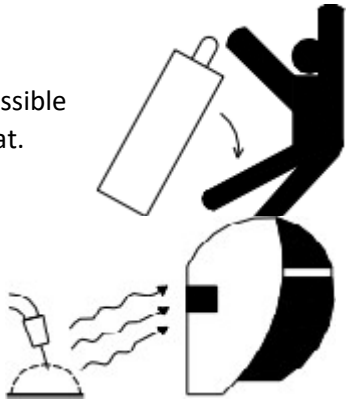
Inserting a gas tank

Bottle connection



Attach the CO2 hose coming from the wire feeder to the copper tube of the gas tank. The gas fitting system includes the gas tank, pressure regulator and gas hose, and the heating cable should be inserted into the rear socket of the machine or use the hose clamp to tighten it to prevent leaks or air inlet. This way the welding point is protected.

Please listen:



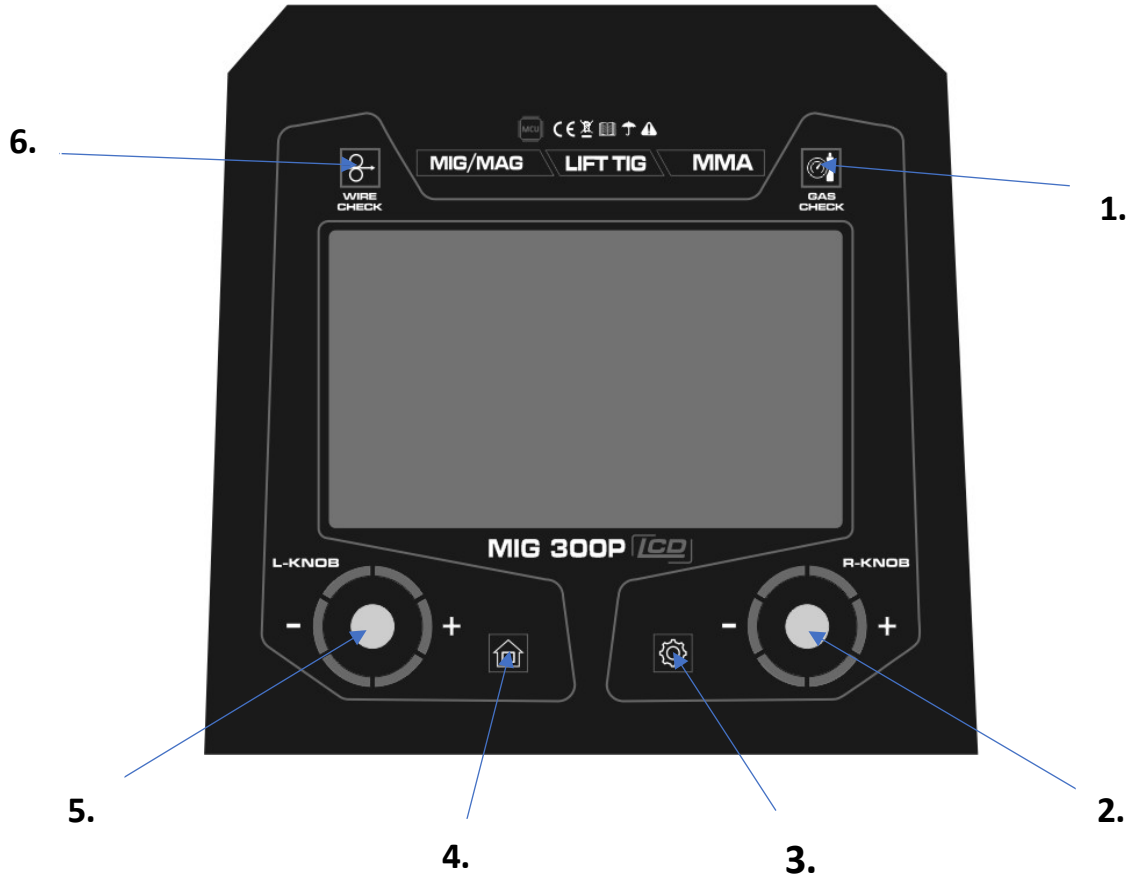
- Gas leakage affects the performance of the welding arc
- Avoid exposing the gas cylinder to direct sunlight to prevent possible explosion of the gas cylinder due to increased pressure caused by heat.
- Do not hit the gas cylinder or lay it horizontally!
- Make sure that no one is standing in front of the pressure reducer before releasing the gas or blocking the outlet.
- The gas outlet volumeter must be inserted vertically for accurate measurement.
- Before inserting the gas regulator, open and close the gas several times to make sure that any dust on the filter is removed and to help the gas outlet.

Material from	Process	Gas
Carbon steel	Constant voltage	100% CO_2
Carbon steel	Synergistic	80/20 gas mix
Stainless steel	Synergistic	98/2 gas mix
Aluminium silicon	Synergistic	100% pure argon
Aluminium-magnesium	Synergistic	100% pure argon
Aluminium alloy	Synergistic	100% pure argon

Comment:

As the arc of MIG welding is stronger MMA welding, please wear a shield, head protection and appropriate protective clothing.

Front structure



1.	Gas control button
2.	Function setting button - Current - Inductance - Wire diameter - 2T/4T treatment mode - Gas afterflow time - Hot Start - ARC Force - VRD
3.	Function button
4.	Welding mode selector and Enter key
5.	Parameter and voltage adjustment knob
6.	Huzal control button

Functions

- **DC normal MIG welding**

Switch on the device with the mains switch. Wait 5 seconds for the digital control program to load. Select the MIG DC function with the left button (5.). In the following menu you can choose the gas you want to weld with.

The values shown on the display indicate the current voltage (V) and amps. On the right (2.) button to adjust the welding strength (amps, voltage, wire tension).

Voltage fine adjustment

To adjust the voltage independently, turn the left knob to set the welding voltage. In synergic mode the adjustment range is -5 to +5V. This setting does not change the welding speed. For ease of use, it is recommended to set the wire speed first and then adjust the voltage setting if necessary.

Setting the inductance

Press the right button again to adjust the inductance of the welding arc. Use the right knob (2) to adjust the inductance from -10 (less inductance) to +10 (more inductance) A quick note on inductance - it effectively adjusts the intensity of the welding arc - the inductance makes the arc "softer", less weld spatter. Higher inductance results in a stronger arc, which can increase fusion. The optimum inductance settings for many welding variables such as material type, shielding gas co

Wire diameter

Press button (3) to select wire diameter. Rotate to select the size.

2T/4T adjustment option

Tactical adjustment is possible by pressing button (3).In 2T mode, the trigger must be pressed and held while welding. In 4T mode, the trigger is pulled once to start welding and then pulled again to stop. This is recommended for long working sessions.

Gas flow time

Press button (3) to open the gas adjustment function. You can adjust the value between 0.1 and 2.0 seconds.

Slow wire feed

Press button (3) to adjust. The slow wire feed can be varied in the range 1.0-8.0 m/min.

- **Single and double pulse MIG welding**

Use button (4) to return to the main menu and select single or double pulse welding mode. In single pulse mode, the following values can be set: voltage fine-tuning, welding voltage and current setting, inductance, wire diameter, 2-4!

Pulsating frequency

The value can be set between 1.0 and 2.5.

"W" pulse width

You can adjust the pulse width with the button (3). It can be set between 20 and 90. The pulse width value affects whether the weld bead is wide and deep or narrow and shallow.

"Cool Pulse"

The pulse frequency is automatically proportional to the current. If the wire speed is less than 2.5 m/min in single pulse mode, the welder automatically enters cool pulse mode.

MMA welding

Press button (2) to select MMA mode. The display will change when welding, to a actual welding voltage and current. You can adjust the amperage by pressing the right-hand control knob (2).

Hot-Start start-up

Press button (3) to set the Hot Start function. Use the right-hand scroll button (2) to fine-tune the setting to a range of 0-10.

Arc Force

Flavour adjustment function between 0-10.

VRD

VRD stands for voltage reduction device. The open-circuit voltage at the output terminals of an MMA welding power source is high enough to electrocute a person if it comes into contact with live terminals. The VRD is a safety adjustment feature that reduces this open circuit voltage to a level where the risk of electric shock is minimal. However, this makes it more difficult for the arc to be knocked over.

Lift-TIG welding

When welding, the display changes to show the actual welding voltage and current. Use the right-hand knob (2) to adjust the
current.

Error codes, malfunction

- Overheating
  If the welder is running at full load for a long time at maximum current, "Over Temperature" will be displayed. This means that the temperature inside the machine has exceeded the upper limit of the acceptable value. Please stop welding immediately, but do not turn the machine off and let the fan continue to run and let the welder cool down. Welding can be resumed as soon as the temperature drops below normal.

- Overcurrent
  If the IGBT current exceeds the safety value when the welding machine is operating, the machine will enter overcurrent protection to prevent damage to the IGBT modules. Please stop welding immediately, turn off welder for 10-30 seconds restart. If the "Over Current" warning still appears, please contact the service department.

5. Operational

Adjustment for gas MIG welding

- MIG working cable in EURO connector should be in a stable condition. The polarity cable connector plug should be connected to the (+) socket, the body cable to the (-) negative socket. Thread in the desired wire, connect the gas.
- Turn on the machine. Open the gas tank valve and adjust the gas flow.
- Select the current transmitter for the MIG welding working cable according to the diameter of the welding wire. Select the wire diameter for the welding material (3) and the welding rate (4), then the welding mode (5) and the desired gas (6) at the same time.
- Adjust the tension and wire tension according to the thickness and process of the workpiece.
- "Inductance adjustment" (11) can change the arc.
- Start welding by pressing the power button on the MIG welding work cable.

Adjustment for gasless MIG welding

- Plug the working cable into the EURO socket.
- Make sure that the correct porbel - gasless wire, matching guide roller and current transmitter are well fit.
- Connect the polarity connection lead of the working cable to the (-) negative welding output in the socket.
- Connect the quick connect lead of the body cable to the (+) positive socket.

Setting for MMA welding

For MMA welding, you need an MMA conductor set and welding electrodes. Arc welding working cable included.

- Connect the quick connector of the body cable to the (-) negative socket.
- Connect the body cable to the workpiece. It is important that the contact with the workpiece is strong, clean, in contact with smooth metal, free of rust, paint or slag.
- Connect the arc/electrode clamp to the (+) positive socket. Note: some electrode types require different polarity connections. If in doubt, contact the electrode distributor/manufacturer.

Adjustment for Lift-TIG welding

- Note: TIG operation requires argon gas and TIG working cable with valve. These accessories are not included in the package, please contact your supplier for more information.
- Plug the quick connector of the body cable into the (+) positive socket.
- Attach the body clip to the workpiece. It is important that the contact with the workpiece is strong, clean, in contact with smooth metal, free of rust, paint and slag.
- Plug the quick connector of the TIG working cable into the (-) negative socket.

Use the Lift-TIG (touch awi) function as follows:

Plug the TIG working cable into the (-) negative socket and connect the gas tube to the pressure reducing reducer on the argon gas cylinder. There is a nut cap on the air tube that can connect to the gas meter. The gas meter and the nut must be threaded in the same way. Open the argon gas valve and the pressure reducer as well. You can control gas flow by adjusting the control valve on the TIG working cable. Select the right colour and diameter of tungsten filament. Touch the tip of the tungsten to the workpiece and lift the TIG working cable a little, then the arc ignition is created.

Setting the welding current

The choice of welding current, voltage and arc affects the stability, weld quality and the result during the welding process. In order to maintain proper weld quality, the welding current must match both the voltage and the arc. Select the wire diameter and nozzle according to manufacturing specifications. Refer to the frequently used welding amperage, arc and voltage listed below.

Welding current and voltage range for $_{CO2}$ welding

Huzal ϕ (mm)	Short circuit transition		Eye-catching transition	
	Ampacity (A)	Voltage (V)	Ampacity (A)	Voltage (V)
0.6	40~70	17~19	160~400	25~38
0.8	60~100	18~19	200~500	26~40
1.0	80~120	18~21	200~600	27~40
1.2	100~150	19~23	300~700	80~120
1.6	140~200	20~24	500~800	32~44

Welding speed option

Weld quality and efficiency should be taken into account when selecting the welding speed. If the welding speed is increased, the protection efficiency is reduced and the cooling process is accelerated. Consequently, it is not suitable for joining. If the speed slows down, the workpiece may be damaged and the joint will not be ideal. In practice, the welding speed should not exceed 30m/hour. Monitor the nut thickness and adjust the optimum ampere and voltage and wire gauge accordingly.

Length of extension of wire

The length of the ignition end of the wire must be sufficient. Increasing the length can help the welding process to be more efficient, but if it is too long, unnecessary spatter will occur during the welding process.

$_{CO2}$ flow rate adjustment

Defence effectiveness is a priority. Internal-angle welding provides better protection than external-internal-angle welding. The table below shows the main parameters.

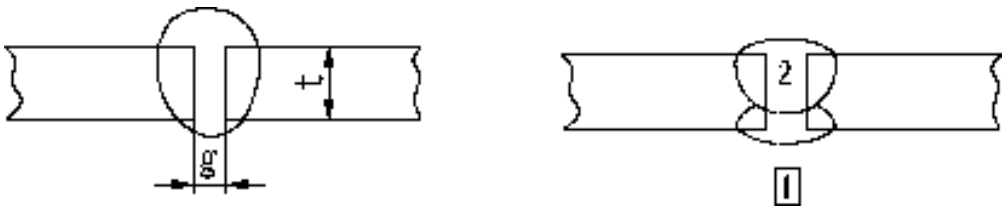
CO2 flow rate alternative

Welding method	Thin wire $_{CO2}$ welding	Thick wire $_{CO2}$ welding	Thick wire, large amperage $_{CO2}$ welding
$_{CO2}$ (L/min)	5~15	15~25	25~50

6. Welding parameter table

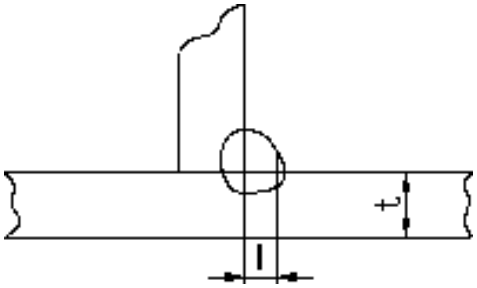
The choice of welding current and voltage can affect the stability, quality and efficiency of the weld. In order to maintain good quality, the current and voltage should be set to optimum. In general, the welding condition should be appropriate to the weld diameter and melting class and also to the manufacturer's condition. The following parameters should be used as a reference.

Parameters for joint welding (See illustration below)



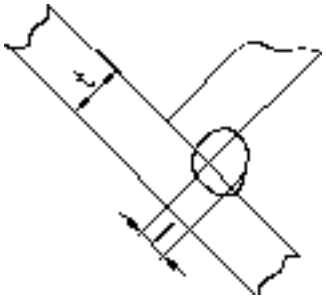
Lemez thickness t (mm)	Rés g (mm)	Huzal ϕ (mm)	Current (A)	Voltage (V)	Welding speed (cm/min)	Gas volume (L/min)
0.8	0	0.8~0.9	60~70	16~16.5	50~60	10
1.0	0	0.8~0.9	75~85	17~17.5	50~60	10~15
1.2	0	1.0	70~80	17~18	45~55	10
1.6	0	1.0	80~100	18~19	45~55	10~15
2.0	0~0.5	1.0	100~110	19~20	40~55	10~15
2.3	0.5~1.0	1.0 - 1.2	110~130	19~20	50~55	10~15
3.2	1.0~1.2	1.0 - 1.2	130~150	19~21	40~50	10~15
4.5	1.2~1.5	1.2	150~170	21~23	40~50	10~15

Parameter for flat angle welding (See illustration below)



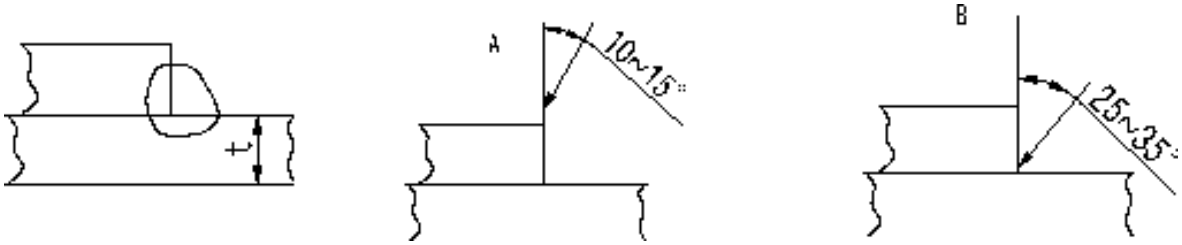
Lemez thickness t (mm)	Eyebrows Size l (mm)	Huzal ϕ(mm)	Current (A)	Voltage (V)	Welding speed (cm/min)	Gas volume (L/min)
1.0	2.5~3.0	0.8~0.9	70~80	17~18	50~60	10~15
1.2	2.5~3.0	1.0	70~100	18~19	50~60	10~15
1.6	2.5~3.0	1.0~ 1.2	90~120	18~20	50~60	10~15
2.0	3.0~3.5	1.0~ 1.2	100~130	19~20	50~60	10~20
2.3	2.5~3.0	1.0~ 1.2	120~140	19~21	50~60	10~20
3.2	3.0~4.0	1.0~ 1.2	130~170	19~21	45~55	10~20
4.5	4.0~4.5	1.2	190~230	22~24	45~55	10~20

Parameter for vertical corner welding (See illustration below)



Lemez thickness t (mm)	Eyebrows Size I (mm)	Huzal ϕ(mm)	Current (A)	Voltage (V)	Welding speed (cm/min)	Gas volume (L/min)
1.2	2.5~3.0	1.0	70~100	18~19	50~60	10~15
1.6	2.5~3.0	1.0~ 1.2	90~120	18~20	50~60	10~15
2.0	3.0~3.5	1.0~ 1.2	100~130	19~20	50~60	10~20
2.3	3.0~3.5	1.0~ 1.2	120~140	19~21	50~60	10~20
3.2	3.0~4.0	1.0~ 1.2	130~170	22~22	45~55	10~20
4.5	4.0~4.5	1.2	200~250	23~26	45~55	10~20

Parameter for overlap welding (See illustration below)



Lemez thickness t (mm)	Welding position	Huzal ϕ(mm)	Current (A)	Voltage (V)	Welding speed (cm/min)	Gas volume (L/min)
0.8	A	0.8~0.9	60~70	16~17	40~45	10~15
1.2	A	1.0	80~100	18~19	45~55	10~15
1.6	A	1.0~ 1.2	100~120	18~20	45~55	10~15
2.0	A - B	1.0~ 1.2	100~130	18~20	45~55	15~20
2.3	B	1.0~ 1.2	120~140	19~21	45~50	15~20
3.2	B	1.0~ 1.2	130~160	19~22	45~50	15~20
4.5	B	1.2	150~200	21~24	40~45	15~20

7. Warning

Working environment

- Welding should take place in a relative dry environment with 90% or less humidity
- The working temperature should be between -10° C and 40 C°
- Avoid welding in an open area unless it is out of the sun or rain. allow the machine to be exposed to rain or water
- Avoid welding in dusty environments or where corrosive gases are present
- Avoid with shielded in areas with strong air flow

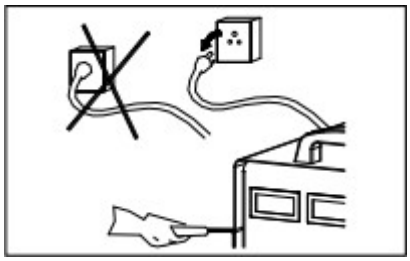
Safety warning!

An overcurrent/overheating protection network is built into the welding machine. If the output current is too high or overheating occurs in the welding machine, the machine will stop automatically. use can lead to machine failure, so please pay attention to the following:

- Ventilation
  High current is generated during welding, so natural ventilation is not enough to cool the machine. Maintain good ventilation for the machine's cooling tunnel. Minimum distance between the welding machine and other objects should be at least 30 cm. Adequate ventilation is extremely important for normal operation and for the machine to work properly.
- No overflow
  Observe the maximum load current (see optional duty cycle). Make sure that the welding current does not exceed the maximum. In the event of an overshoot, the protection system will trip, the output voltage will not be stable and the welding arc will be interrupted. In this case, please reduce the current.
- No overloading
  Overloading can shorten or even destroy the life of the machine. In case of an overloaded welding machine, a sudden stop can occur during operation. In this case, the machine must be restarted. Leave the built-in fan on to allow the temperature to drop to the correct value.
- Avoiding electric shock
  The welding machine has a ground terminal. Connect the grounded cable to avoid static or electric shock.

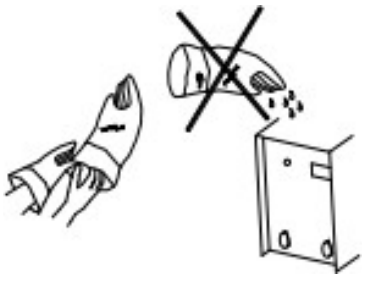
8. Maintenance

- Unplug the machine before carrying out maintenance or repairs.
- Make sure that the ground wire is properly connected to the ground terminal.
- Also check the internal gas-electricity connection (especially the connectors) and confirm loose connections. If burnt, remove with sandpaper and reconnect.



- Keep hands, hair, loose clothing and tools away from electronic parts such as fans when the machine is on.

- Regularly remove dust with clean and dry compressed air, if there is a lot of smoke or air pollution during work the machine should be cleaned daily.
- Use air at the correct setting or you may cause failure in smaller components.



- Rain and water must not touch the machine, otherwise dry it immediately and check the insulation with a multimeter (including between the connections and between the bracket and the connections). Only if there are no abnormal phenomena should work continue.
- If the machine is not used for a long period of time, put it back in its original packaging and store it in a dry place.

9. Daily test

To get the best from your machine, you need daily checks. Please check the working cable, wire feeder, all kinds of PCBs, gas ports, etc. Remove dust or replace parts if necessary Keep the machine clean, use original parts.

Electricity supply

Part	Investigation	Opinion
Control panel	1. Operation, switch replacement and insertion	
	2. Power on, check that the display is operational	
Fan	1. Check that the fan sound and its functioning is adequate	If it works or makes a bad sound out, look inside
Electricity supply	1. Switch on the power and check that the vibration, the holder and the temperature of the instruments are correct	
Other	1. Check that the gas connection is accessible, bracket and connections are good whether they are in	

Welding working cable

Part	Investigation	Opinion
Tube end	1. Check that the pipe end is fixed, or that the tip görbül	Possible gas leakage due to fixed pipe end
	2. Check if the water is contaminated pipe end	The contamination of the working cable to deterioration can lead to. Use a splash guard
Contact mountain	1. Check that the power transformer is properly fixed	Non-fixed current transmitter unstable arc leads
	2. Check that the power transformer is not damaged	Physically damaged current transformer leads to unstable and will not be perfect
Hose dispenser hose	1. Make sure there is a match between the wire and the current transformer between size	If the diameter of the wire and the current transmitter do not match, it is unsafe leads to an arc. Replace if necessary
	2. Make sure the working cable is not damaged or broken	Damage or breakage leads to unstable dosing and arcReplace if necessary
	3. Check that there is no accumulated dust or splashing on the inside of the wire feeder	If you find dirt or splashes, remove them
	4. that the wire feeder and the O-shaped locking ring are physically full	A physically truncated dispensing tube or O-shaped shut-off ring will lead to excessive splashing. Replace if necessary

Sprayer	1. Make sure the required listing of the atomiser is set and not blocked	Welding seam defects and working cable damage can occur if the atomizer is not adjusted or is not properly carburettor

Huzal dispenser

Part	Investigation	Opinion
Pressure aligner ear	1. Check that the pressure adjustment tab fixed and placed in an ideal position	Leads to unsafe welding not fixed pressure adjustment tab
Hose dispenser hose	1. Check for any dirt or splashing inside the tube or near the dosing wheel	Remove the dirt
	2. Check that the diameter matches the diameter of the the wire and the dosing hose	Uneven diameter uncertain leads to an arc
	3. Check that wire guide rod and feed rollers are concentric	The possibility of an uncertain arc
Wire feed roller	1. Check that the wire matches diameter and feed rollers	If these do not match conditions for excessive splashing and leads to an uncertain arc
	2. Check if the wire groove is clogged	Replace if necessary
Pressure adjustment wheel	1. that the pressure adjustment wheel is easy to turn, physically complete	Unsafe winding or a physical deficiency may result in uneven wire feed and arc

Cables

Part	Investigation	Opinion
Working cable	1. Check that the working cable is not broken	Coiled working cable leads to unstable wire guidance and arc
	2. Check that the whether the connectors loose connection	
Output cable	1. Check that the cable is physically full	Appropriate measures must be taken obtain a stable weld and prevent possible electric shock order
	2. Check that the insulation damaged or loose contact	
Cement cable	1. Check that the cable is physically full	
	2. Check that the insulation damaged or loose contact	
Earthing cable	1. Check that the earthing cable is fixed and not short-circuited	Appropriate action must be taken to prevent possible electric shock
	2. that the welding equipment is well grounded	