



# MANUAL BOOK

**MZ-1250D**

Inverter Submerged Arc

Welding Machine



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## 1. Description of production

### 1.1 Explanation of the model & name

Model: MZ -1250C

Name of produce: Automatic Submerged Machine Arc Welding Machine

### 1.2 Main using purpose, using range & working environment requirements

#### 1.2.1 Using purpose and using range

**Inverter DC Submerged Arc welding power source:** The IGBT(SIEMENS eupec) inverter DC submerged Arc welder/hand welding/ carbonize arc planer power source is successfully developed by the up to date technology. The welding current and welding voltage are digital showed with accurate welding parameter adjustment. The welding current is more steady by using current sensor from SEM. Therefore, the steady welding process and high quality welding line can be guaranteed. It is the advanced product of submerged arc welding power source at present. Compared with the traditional product (Silicon controlled rectifier), it has the excellence of delicate welding line, wide welding parameter adjustment, light weight (1/4~1/5 of silicon controlled rectifier), low electricity consume (30% save) and good reliability. It is the chief product which can substitute the traditional product. This welding machine is used with a welding pulley which can weld automatically under the welding solder. It is mainly used for welding all kinds of steel plate with connections, angles etc. The products can be widely used for carbon steel, low carbon steel, stainless steel, alloy steel, hot-proof steel and complex steel..

#### 1.2.2 Working environment

Height above sea level:  $\leq 1000\text{m}$

Relative humidity:  $\leq 90\%$ (25°C )

Relative temperature: -10°C ~+40°C

The working environment must have no any gas which can influence the welder working, no chemical dust, no mildew, no caustic substance which is easy to burn or blast.

No any acute shaking

### 1.3 Main technical data

Rated input voltage	three phases
Rated welding current	1250A
Rated duty cycle	100%
Rated welding voltage	44V
No-load voltage	85V
Adjusting range of welding current	100-1250A
Adjusting Range of welding voltage	24-44V
Diameter of wire	3.0 4.0 5.0 6.0
Speed of wire feeding	shift wire feeding

Welding speed	15-150cm/min
Upright adjust distance of the head (changing the ling and short pole not included)	96mm
up angle adjusting of the head	45°
deflection angle of the head	±45°
The wheel distance of the moving pulley	300mm
Weight of the pulley (solder and wire not included)	52kg
Capacity of the solder	10L

## 2. Installation

### 2.0 Safety caution



**Danger**

For your safety, please obey the rules as following

▲ Don't touch the electriferous parts of the welder

▲ The welder must be grounded. The grouded cable must not be less than 16mm<sup>2</sup>

▲ Don't use those cable which diameter is too small or the insulation is broken

▲ Both input cables and output cables must be firmly connected and good insulation must be guaranteed

▲ Ask the ptofeddional man to maintenance the welder regularly

▲ Be sure to cut off the power when the welder is not in using

2.1 The cable diameter of the input power must be more than 25mm. The undulation of the power voltage must be lower than 10%

2.2 Connect the 25mm power cable of the welder MZ-1250C with the output of the 16A breaker. The capacity mustn't be less than 150A.

2.3 Favorable ventilation must be guaranteed, Avoid the damage of the welder by the temperature rising too high. The distance between the welder and the around fraise must be more than 1m.

# Installation Diagram 1

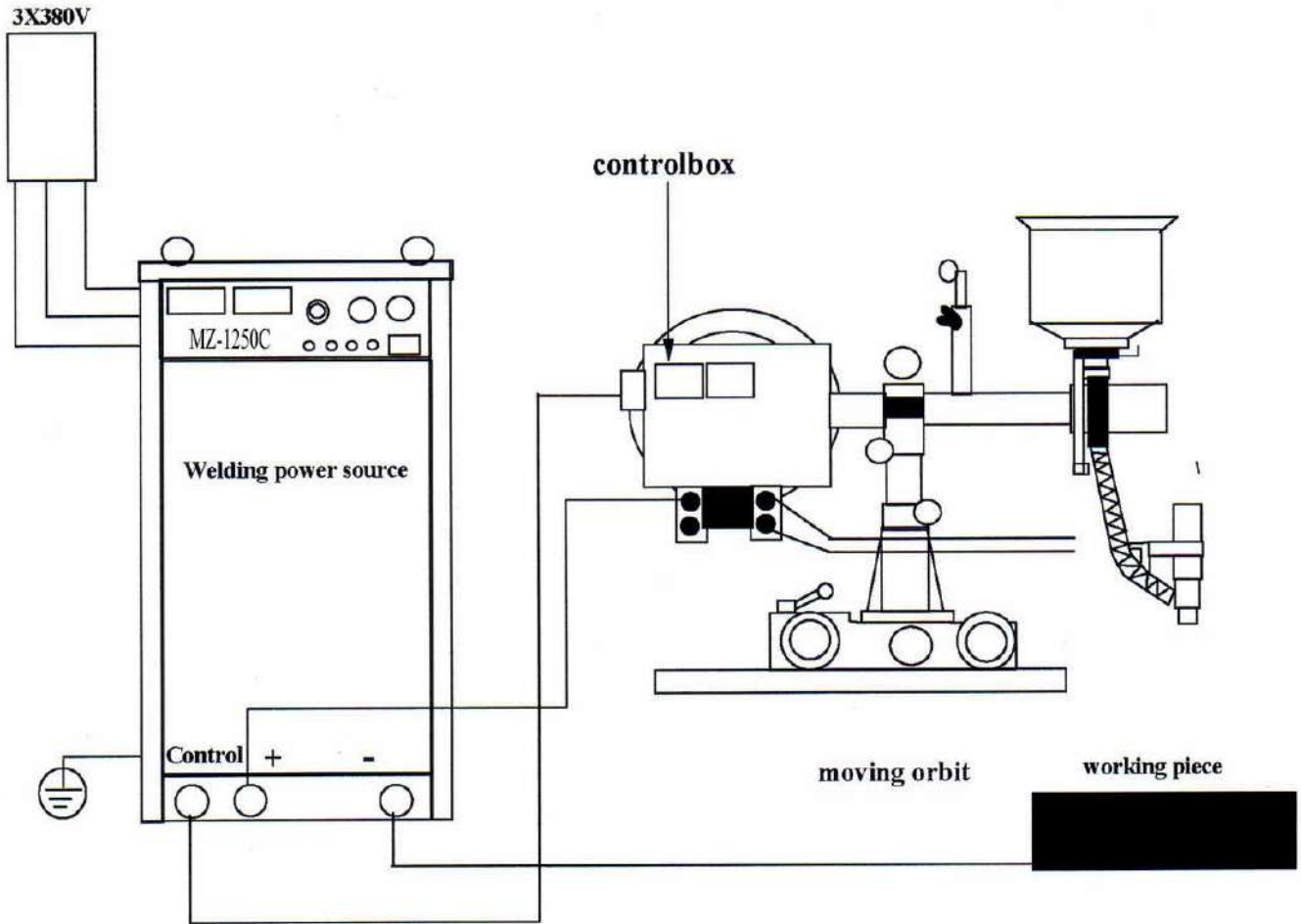


Diagram 1 Installation drawing of the welder

2.4 Parallel connect two pieces cables(15m/piece),and connect one side with output positive pole of the welder power firmly,then connect another side with the bypass of the welding pulley . Parallel connect two pieces of the cables(5m/piece),and connect one side with output negative pole of the welder power firmly,then connect another side with the working piece.The above mentioned four pieces of cables are accessories of the welder.The left of welder power is positive pole and the right of welder of weld is negative pole.

### **3.Structure of the welding pulley (attachment diagram 3)**

1.welding wire:Install the welding wire before welding.The wire must be orderly as much as possible.

2.Controller:All the welding control can be realized by the controller.

3.Lock the toll of head:If release the handle,the head can be rolles around the welding pully.

4.Turning handle if the controller:If release the handle,the control box can be turned left and right for operation

5.Lock the rail:If release the handle,the rail can be moved left & right.You may adjust the rail the right welding position that you needed.

6.Flying rings:Use the rings when lifting the pulley.

7.Wire leader:Lead the wire between the two wheels before the wire inside the welding gun.

8.Solder hopper: Fill the solder inside.There is a switch underside of the hopper which can control the flux of the solder.

9.Adjust the lift of welding gun:Adjust the lift in order to make the welding wire put out the gun for about 30mm.

10.Solder switch:Control the flux of the solder or stop the solder completely.

11.Adjust the angle of the head:If release the bolt,the head can be turned for 60 degree front and back.

12.Wire feed roller:The roller is easy abrasion.The attachment part diagram 1

13.Straight proof roller:Straight the wire out the wire feed roller.

14.Pressure adjustment:Use this handle to adjust the pressure of the wire to a normal position.

15.Adjusting handle for the straight roller:Working together with the straight proof roller to straight the wire.

16.Conductive plate: Connect it with the positive pole of the welder power through the bypass of the welding pulley by cable.

17.Locking handle for the head lifting:If release the handle,the head can be lifted.

18.Pole of the welding gun:We prepare two pieces of poles for customer's use together with the welding machine,You can connect the poles together to a suitable length for the working piece.

19.Switch of the clutch:The pulley can be moved automatically if turn on the switch..You

may turn off the switch before you move the pulley by hand.

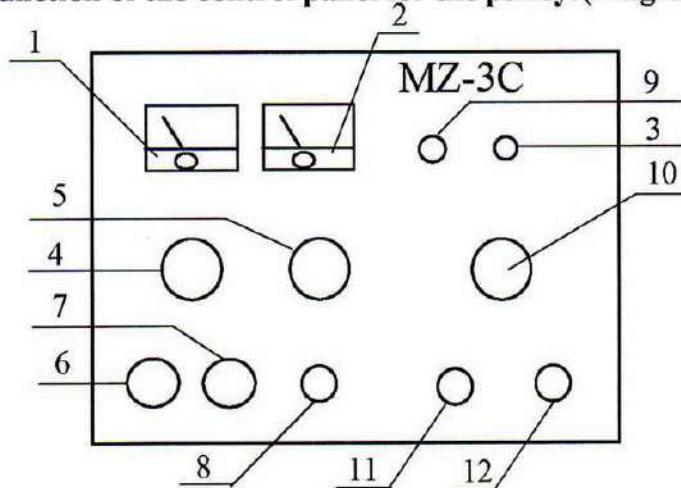
20. Conductive nib: It has the function of electric conduction while welding. We prepare one piece of 3.4.5.6 each together with the welding machine. Note: Different diameter of wire is suitable for different nibs. customer can make it by himself. Pay attention to the diameter of the nib, If the nib is too small, the wire can not be put in. If it is too big, the electric conduction is not so good. If you find the electric arc is not steady or stop you must change the nib immediately.

21. Movable handwheel: It is frequently be used during welding, Adjust it to make the wire to the opposite welding line,

22. Moving orbit: It is the orbit for the welding pulley.

23. Locking bolt for the adjusting angle of the head: If release the bolt the head can be turned by the angle of 45 degree.

**4. The function of the control panel for the pulley: (Diagram as follows)**



1. Current meter: Indicate the welding current

2. Voltage meter: Indicate the welding voltage or the voltage of the movable motor. Selected by the switch "9"

The above two meters indication are different with the indication on the submerged arc welding power. We are in accordance with the indication of the two meters during welding.

3. Power indicating lamp: Indicate the pulley has electricity or not.

4. Welding current: Use the button to adjust the welding current. Veering the button can increase the current,

The diagram as following is a corresponding diagram for the dial figure and the current figure for the reference.

Dial Figure	2	3	4	5	6	7	8	9	10	11
Current (A)	200	300	420	530	640	750	860	970	1080	1250

5. Welding voltage: Veering the button can increase the arc voltage (The speed of the wire feeder becomes lower). The voltage is different while using different diameter of wire and different welding current even if the voltage adjusting button is in the same position, The diagram as following indicate the voltage while using wire with 600A current for the reference.

Dial Figure	4	4.5	5	5.5	6	6.5	7	7.5	8
Voltage (V)	25	26	27	29	31	34	36	42	45

6.Beginning::Press the button when welding begins.

7.Stop:Press the button and the welding stops.

8.wire adjusting:Use the button when install the welding wire or adjust the beginning arc distance between the wire and working piece(1~2mm).Pull it upwards ,then the wire falls back pull it downwards,then the wire goes ahead.Release it.and it will be back to the middle position.

9.Welding voltage indicating/moving motor voltage indicating:If the switch is in the position for "welding voltage",the voltage meter(2)indicetes the welding are voltage,If the switch is in the position for"Motor voltage", the voltage meter (2) indicates the moving motor voltage.

10.Welding speed:Adjust the moving speed of the pulley.The diagram as follows indicates the moving distance of the pulley per minute under the different motor voltage for reference.

Voltage (V)	10	20	30	40	45	50	55	60	65	70	80	90	100
Speed cm/min	10	24	32	54	58	64	73	83	89	95	110	118	132

11.Left move /Right move: Change the moving direction of pulley.

12.Hand operation/Auto-operation:When it is in the position of "Hand-operation",we can test the moving speed of the pulley (welding speed).

**Note:The control panel of the pulley has the function of drop control.Customer may put the function switch of the power on the position of submerged arc welding .**

## **5.Brief introduction for the welding material,and the ceaft.**

### **5.1Welding solder**

The fnction of the welding solder is to guarantee the perfect figurations of the welding line Moreover,it can be melt to cover the pool to prevent the oxygen & nitrogen in the air from entering the pool.It can make the metal reaction with the liquid metal and get rid of the impurity element such as oxygen,hydrogen,sulfur and phosphor and filter the alloy element that needed,so that the metal of the welding line has perfect mechanical function and special performance.The solder can be devided into alkalescence solder,acidety solder and neutral solder. According to the chemical character,the solder can be devided intooxidation solder (large SiO<sub>2</sub>,MnO or FeO solwler inside),weak oxidation solder and inertia solder (Al<sub>2</sub>O<sub>3</sub>.CaO,MgO,CaF<sub>2</sub> inside,almostmo SiO<sub>2</sub> MnO,FeO inside).



Frequent using for welding solder & wire

Model of solder	Function	Granule degree of solder	Suitable wire	suitable current type
HJ130	Low carbon steel, normal low alloy steel	0.45~2.5	H10Mn2	AC,DC
HJ131	Ni radicle alloy	0.3~2	Ni welding wire	AC,DC
HJ150	Roller pile welding	0.45~2.5	2Cr13,3Cr2w8	DC
HJ172	High Cr ferrite steel	0.3~2	Suitable wire	DC
HJ173	Mn-Al high alloy steel	0.25~2.5	Suitable wire	DC
HJ230	Low-carbon steel, normal low alloy steel	0.45~2.5	H08MnA,H10Mn2	AC,DC
HJ250	High strength steel with low alloy	0.3~2	Suitable wire	DC
HJ251	Refractory steel	0.3~2	Cr-Mo steel wire	DC
HJ260	Stainless steel Roller pile welding	0.3~2	Stainless steel wire	DC
HJ330	low carbon steel and normal low alloy steel	0.45~2.5	H08MnA,H10Mn2	DC
HJ350	Low alloy steel high strength steel	0.2~1.4	Mn-Mo,Mn-Si and Ni high strength steel wire	AC,DC
HJ430	Low carbon steel and normal low alloy	0.45~2.5	H08A,H10MnA	AC,DC
HJ431	Low carbon steel and normal low alloy	0.45~2.5	H08A,H10MnA	AC,DC
HJ432	low carbon steel and normal low alloy steel	0.2~1.4	H08A	AC,DC
HJ433	Low carbon steel	0.45~2.5	H08A	AC,DC
SJ101	Low-alloy steel	0.3~2	H08MnA,H10MnMoA	AC,DC
SH301	Normal steel	0.3~2	H08MnA,H10Mn2,H08MnMoA	AC,DC

5.2 Welding wire

The use of welding wire is according to the metal welded, It can be divided into charcoal structural steel, alloy structural steel, high alloy steel and kinds of colored metal wire and special alloy wire. The surface of the wire must be smooth so that it is easy to pull in the gun. Copperized wire on surface is better. Copperized wire can not only prevent the rust but also improve the connection between wire and the nib. Wipe off the oil and dust from the wire before it is used, otherwise it can produce the gas inside the welding line and affect the mechanical performance of the line.

Diameter of steel welding wire and its windage permitted

Diameter of wire (mm)	2.0 2.5 3.0	3.2 4.0 5.0 6.0	6.5 7.0 8.0 9.0
windage permitted normal precision	-0.12	-0.16	-0.20
windage permitted high precision	-0.06	-0.08	-0.10

Diameter of the normal steel welding wire and the current range

Dia of double wire(mm)	1.6		2.0	2.4		
Diameter of wire(mm)	2.0	2.5	3.0	4.0	5.0	6.0
Current Range(A)	200~400	250~450	350~600	500~800	700~1000	800~1200

### 5.3 The size of the welding line affect

#### 5.3.1 Welding craft data

##### welding current

If the welding current  $I$  is increased, the productivity is increased. Then the fusion proportion  $T$  and melt deep  $H$  is enlarged. If  $I$  is too much high, it can be burned through and too much heating area. If  $I$  is too low, the melt deep is not enough and break up the figuration. In the condition of normal welding, it is direct proportion between melt deep  $H$  and welding current  $I$ .  $H \approx K_m \times I$   $K_m$ -proportion coefficient. It is effected by current type, polarity, diameter of wire and the chemical component of solder. If using thick wire,  $K_m \approx 1 \text{ mm}/100 \text{ A}$ ; If using thin wire,  $K_m \approx 1.3 \text{ mm}/100 \text{ A}$

##### Arc voltage

It is direct proportion between arc voltage and arc length. If other conditions are not changed, the width of the line will be obvious increased and the deep will be decreased when the arc voltage is increasing.

##### welding speed

Welding speed has obvious effect to the melt deep and melt width. When the welding speed is low (For example, the speed is less than 670 mm/min), the melt deep is increased along with the welding speed increasing and slope the arc. In normal condition, the melt deep, melt width and weight of the line will be decreased along with the welding speed increasing. If the speed is up to a position, both the melt deep and melt width will be decreased obviously.

#### 5.3.2 Welding craft

Both the angle of the welding wire and the working piece much effect to the welding line.

The slope of the wire is divided into front slope and back slope. The arc has different power and heat to the melt if the direction and magnitude of the angle are different, it can also effect the figuration. If the wire is in back slope, the metal on the bottom of the pool is thicker, so the deep is decreased and the width is increased. The slope of the working piece is divided into upgrade welding and down grade welding. The figuration is different obviously, when it is upgrade welding. It is easy to have too much over height bad figuration etc, so we must avoid the upgrade welding as possible as we can. When we have down grade welding, the angle is less than 6~8, the deep and over height will be decreased and the width is increased a little. So the figuration can be improved. But if the angle is too big, it has the short coming for not welding enough or welding hump.

#### 5.3.3 Structure factor

##### (1) Form of slope

Increase the width & deep of the slope, and the deep of the melt will be decreased a little. The over height and fusion proportion will be decreased obviously.

**(2) Clearance**

During the connection welding, clearance amendment can adjust the over height of the line and the fusion proportion. But if the clearance is too large, it is easy to weld through. The diagram as following is the effect between the clearance and the size of the welding line, (wire 5mm solder HJ330):

**5.4 Connection single side welding**

Thickness of plate (mm)	Craft data			melt depth(mm)			melt width (mm)			over height(mm)			fusion proportion		
	welding current	arc voltage	welding speed	Clearance(mm)											
				0	2	4	0	2	4	0	2	4	0	2	4
12	700~750	32~34	50	7.5	8.0	7.55	20	21	20	2.5	2.0	1.0	74	64	57
			134	5.6	6.0	5.5	10	11	10	2.0	-	-	71	61	46
20	700~750	36~38	20	10	9.5	10	27	27	27	3.0	2.0	2.5	60	57	52
			33.4	11	11.5	11	23	22	22	3.5	2.5	1.5	63	58	49
			134	6.5	7.0	7.0	11	11	10	2.5	-	-	72	61	45
30	700~750	40~42	20	10.5	11	10.5	34	33	35	3.5	3.0	2.5	61	59	55
			33.4	12	12	11	30	29	30	3.0	2.0	1.5	67	63	69
			134	7.5	7.5	7.5	12	12	12	1.5	-	-	77	72	60

When we use submerged arc welder, the working piece can make the slope or without making the slope. The slope can guarantee not only the depth of melt but also other craft purpose. Connection single side welding has several methods as following, weld on the solder plate, weld on the permanent plate or locking bottom, weld on the casual plate or impending welding.

weld on the solder copper plate, We use a copper plate with slope and put the solder in the slope. It has the function not only for mat but also protecting the copper plate from the arc effect directly. The slope has the function of figuration on the back of welding line

weld on the permanent plate or locking bottom. When the working piece permit to keep the permanent plate, we may take this way to weld the working piece which has the thickness of less than 10mm. We take the locking bottom connection to weld the working piece which the thickness is more than 10mm.

Impending welding. If the working piece has quality assembling without the clearance, we can use impending welding. The working piece can not be completely melt. The melt deep is only 2/3 thickness of the plate, otherwise it is easy to melt through. This method is only suitable for welding connections which require the working piece not be welded through.

Weld on the solder mat. The quality of the line is mainly depended on the underlay of the solder equality of the solder and equality of the welding line assembling.

Diagram 4.1 is the welding condition for connection single side welding on the electromagnetism roof-solder mat.

Thickness of the plate (mm)	Assmbeinp clearance(mm)	Diameter of wire(mm)	Welding current(A)	Arc voltage (V)	welding speed (cm/min)	Granule in the solder mat
2	0~1.0	1.6	120	24~28	73	thin
3	0~1.5	1.6(1.6x2)	275~300	28~30	56.7	thin
		2.0(1.6x2)	275~300	28~30	56.7	
		3.0 (2.0x2)	400~425	25~28	117	
4	0~1.5	2.0(2.0x2)	375~400	28~30	66.7	thin
		4.0(2.0x2)	525~550	28~30	83.3	
5	0~2.5	2.0(2.0x2)	425~500	32~34	58.3	normal
		4.0(2.0x2)	575~625	28~30	67.5	
6	0~3.0	2.0(2.0x2)	475	32~34	50	normal
		4.0(2.0x2)	600~650	28~32	67.5	
7	0~3.0	4.0(2.4x2)	650~750	30~34	61.7	normal
8	0~3.5	4.0(2.4x2)	725~775	30~36	56.7	normal

### 5.5 Double side connection welding

Impending welding. No any clearance or only very small clearance appeared during assembling (not more than 1mm). The melt deep is less than half of the thickness of the piece. The melt deep on the other side must be 60%~70% thickness of the piece. So that the working piece can be welded completely.

Weld on the solder mat. It is economical to put apart clearance but without the slope on the working piece during the welding on the first side. The melt deep must be more than 60%~70% on the first side. After finish welding the first side, turn over the working piece for welding another side. The data must be as the same as the first side to guarantee the welding completely.

The diagram 4.2 is the welding conditions for the connection impending double side welding without slope.

Thickness of working piece(mm)	Diameter of wire (mm)	positive welding data			Negative welding data		
		welding current(A)	welding voltage (V)	welding speed (cm/min)	welding current(A)	welding voltage (V)	welding speed (cm/min)
6	4(2.0x2)	380~420	30	58	430~470	30	55
8	4(2.0x2)	440~480	30	50	480~530	31	50
10	4(2.0x2)	530~570	31	46	590~640	33	46
12	4(2.0x2)	620~660	35	42	680~720	35	41
14	4(2.4x2)	620~660	37	41	730~770	40	38
15	5(2.4x2)	680~720	34~36	63	850~900	36~38	43
17	5	800~850	35~37	60	900~950	37~39	43
18	5	850~900	36~38	60	900~950	38~40	40
20	5	850~900	36~38	42	900~1000	38~40	40
22	5	900~950	37~39	53	1000~1050	38~40	40

### 5.6 Angle welding

Barque shape welding

Make the two sides of the angle line to be 45. It is the best condition to form the welding line. It requires the assembling clearance is not more than 1~1.5mm. Otherwise, some steps must be taken to prevent the liquid metal

disappear.

Horizontal angle welding

The position of wire and welding line have much effect for the quality of horizontal angle. The angle of wire is between 20~30 normally. The actual position of the wire must be decided by the connection condition. The section of the horizontal angle must be less than 40~50mm. If the length of the welding angle is more than  $8 \times 8$ mm, the metal is easy to overflow.

## 6. The normal welding shortcoming and preventions

### 6.1 Air note

a) The hydrate, dust oxygen iron in the solder can produce the air hole in the welding line;

b) The solder cover is not enough during the welding

c) The adhibit of the welding dregs is too much;

d) The arc magnetism blow deflection. the air hole appears at the end of the welding. It can be net during weld the thick plate

e) The working piece is polluted by the rust, oil or other things

Crack

a) Crystal crack: The sulfur, phosphor and other impurity can form the crystal crack during the welding

b) Hydrogen crack: This crack often appear during the low alloy steel welding, middle alloy steel welding and high alloy steel welding.

Welding dregs

It is concerned by the assembling situation of the working piece and welding craft data beside the dregs off performance of the solder.

### 6.2 Preventions

Please take the steps as following according to the welding to the welding quality requirements

Completely get rid of the oil, rust, water and other impurity on the welding wire and two sides of 20mm range of the welding line.

The welding solder must be drying strictly and keep then inside of the drying box with the temperature 50

The callback solder must be prevent the pollution by the oxygen skin, dregs, water and dust etc.

The granule in the solder must be perfect. Get rid of the small dust.

The thickness of the solder must be perfect.

The assembling clearance must be less than 0.8~1mm during the imprnging welding.

When the arc magnetism blow deflection, weld beginning must be from the ground cable side. The ground connection must be firmly.

## 7. Trouble judgment

### 7.1 Only the professional electrician can open the welder and repair it

### 7.2 Inspect the welder with a meter as following

The power source is three phases 380/400/415/430VAC. Check if the phase is absent or the voltage wave frequently

Check if the switch of the power source is damaged. Check if the fuse is blowout. Check the cable of the power source is installed reliably. Otherwise, the welder can not work normally

□ Check the fuse of the MZ-1250C power source and the fuse inside the fusebox are blowout

The control cable is easy to be broken because of the environment, Check the two plugs of the control cable by the meter:

Foot	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Estate	on	on	on	on	on	off	on	on	on	on	off	off	on	on	on	off	off	off	off	off

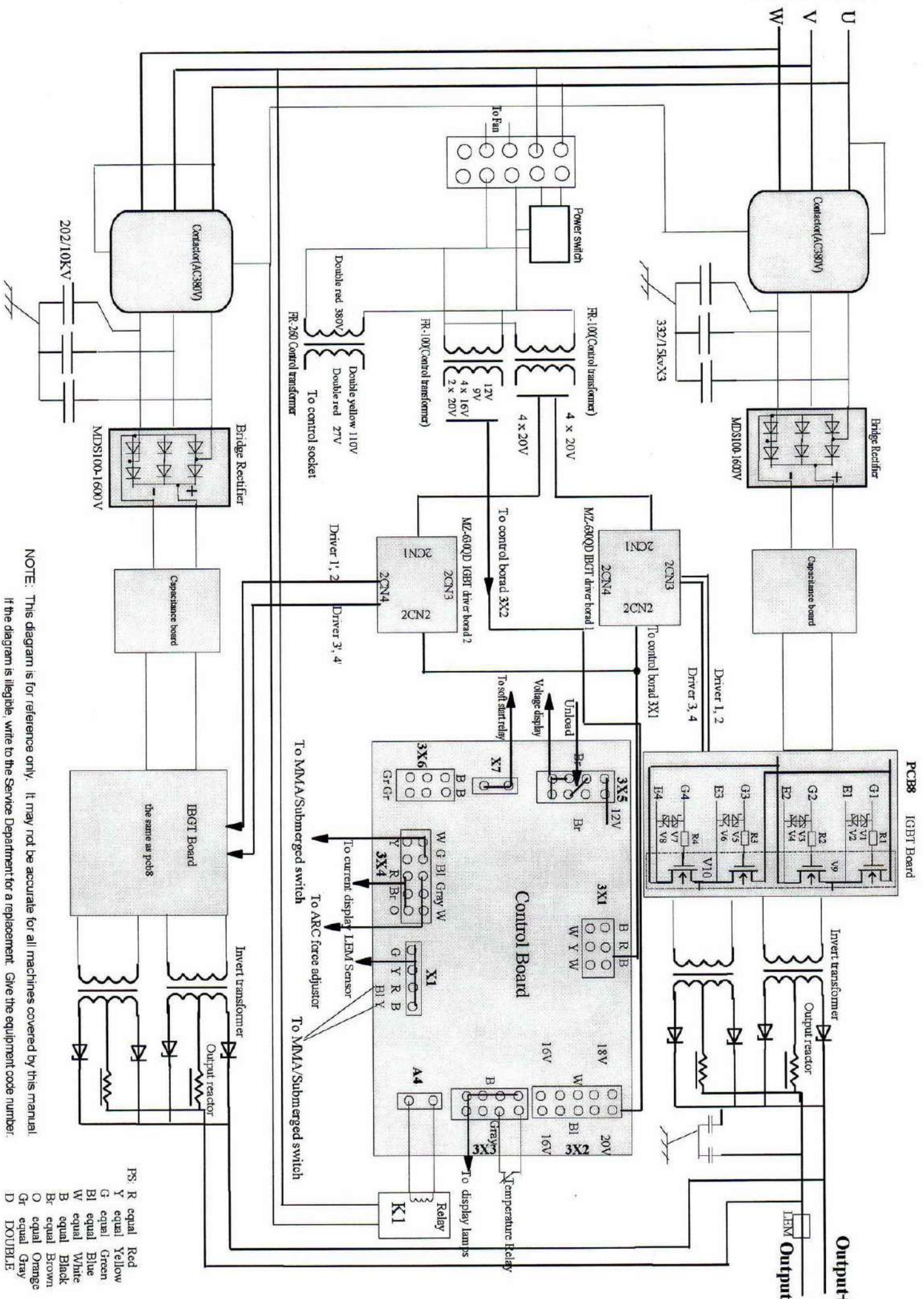
### 7.3 Trouble and Remedy

Trouble	Cause	Remedy
1. The current is not steady or the arc stop during the welding	1. The welding data is not proper 2. Welding wire can not be straighten 3. Over-loaded use, the welder protect automatically 4. Wire feed motor brush damaged or connections not firm 5. The wire feed wheel is abrasion and not press the wire enough 6. The diameter of the nib is too big or it is not smooth 7. The solder is inside the nib during the welding. So the wire can not be pulled out 8. The input cable of power can not be connected properly 9. The control cable can not be connected properly 10. The radiator is damaged or the thermostat is damaged	1. Adjust the welding data 2. Pay attention to the wire 3. Don't over-load use the machine 4. Change the brush or fix the connection 5. Change the wheel and press the wire firmly 6. Change the nibs 7. Pay attention to the solder 8. Check the input cable of power source. 9. Check the control cable 10. Change the thermostat
2. The wire feed wheel recede when starting	1. The connection of the control cable is off inside 2. Can not start the power source The voltage meter has no voltage indicator 3. The LM324 and 7824 are damaged on the pulley control plate	1. Check the control cable 2. Turn the switch of the power to the hand weld position. Check the J1 on the control plate and J1 on the power 3. Change the 7824 and LM324

<p><b>3. When the hand feed the wire and the pulley start, the motor rolls but the wire feed wheel can not roll</b></p>	<p>1. The bind between the axes of the wire motor and the wire feed gear-box is abrasion</p>	<p>1. Change the bond</p>
<p><b>4. The exceptional light indicates when starting the power switch off</b></p>	<p>1. IGBT damaged 2. The input voltage is too low 3. The output diode damaged</p>	<p>1. Change the IGBT 2. Check the power source 3. Change the diode</p>

If you meet the trouble that you can not settle, please tell our company about the detail phenomena (pulley hand moving, starting move if regular or not, the pulley starting and the welding power function is working normally or not etc.) Our company repair it then.

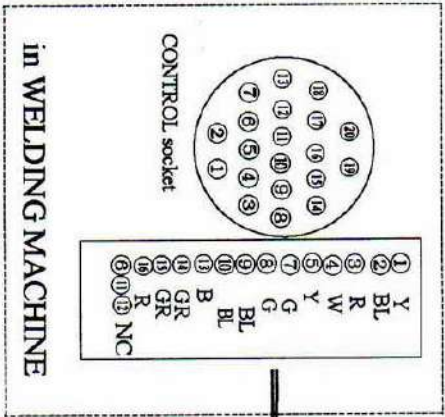
**8. Completed product set (packing list)**



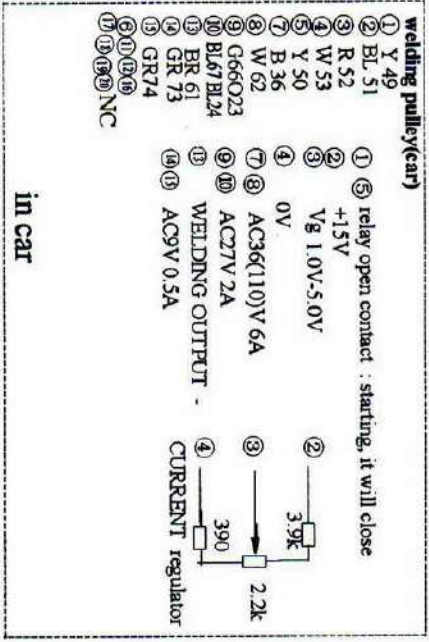
NOTE: This diagram is for reference only. It may not be accurate for all machines covered by this manual. If the diagram is illegible, write to the Service Department for a replacement. Give the equipment code number.

- PS: R equal Red  
 Y equal Yellow  
 G equal Green  
 Bl equal Blue  
 W equal White  
 B equal Black  
 Br equal Brown  
 O equal Orange  
 Gr equal Gray  
 D DOUBLE



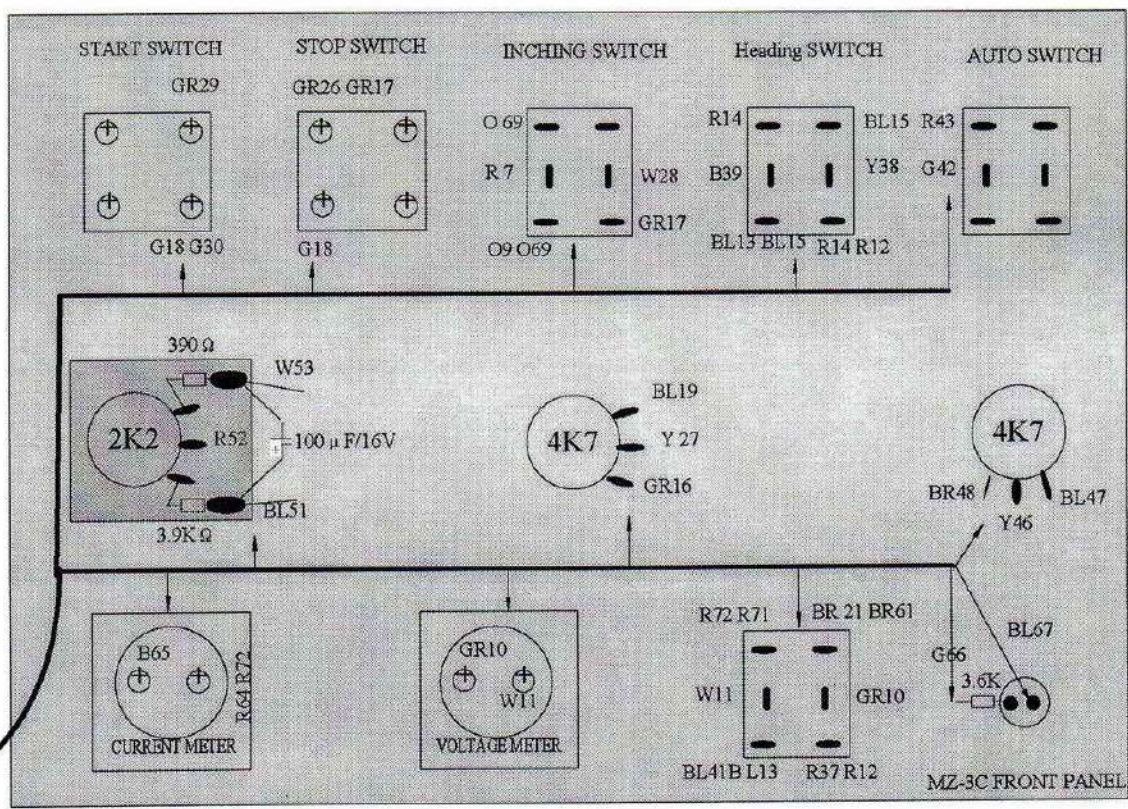
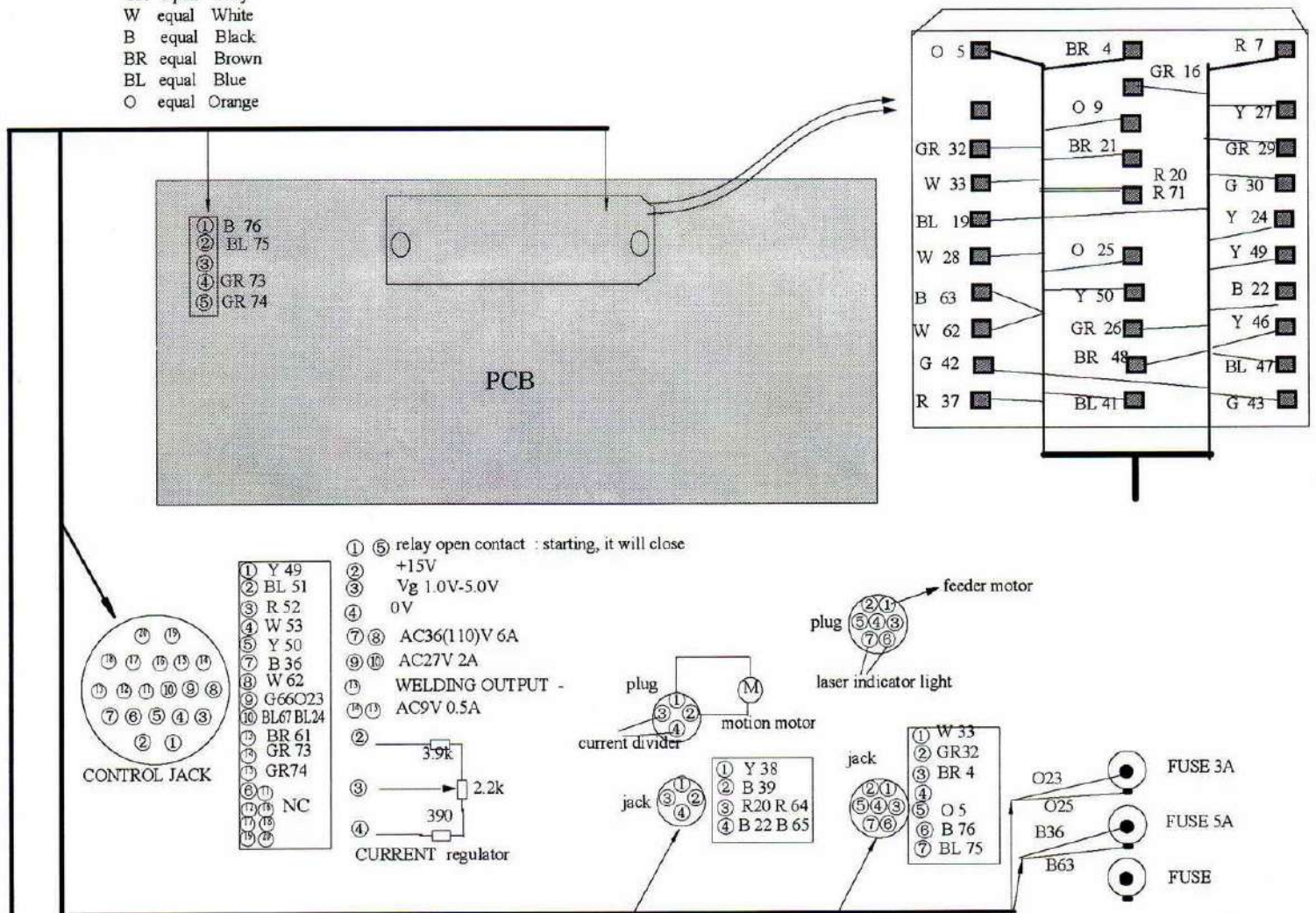


connected to:



PS: R equal Red  
 Y equal Yellow  
 G equal Green  
 GR equal Gray  
 W equal White  
 B equal Black  
 BR equal Brown  
 BL equal Blue  
 O equal Orange

### MZ-3C wiring diagram



			
<b>WARNING</b>	<ul style="list-style-type: none"> <li>Do not touch electrically live parts or electrode with skin or wet clothing.</li> <li>Insulate yourself from work and ground.</li> </ul>	<ul style="list-style-type: none"> <li>Keep flammable materials away.</li> </ul>	<ul style="list-style-type: none"> <li>Wear eye, ear and body protection.</li> </ul>
Spanish <b>AVISO DE PRECAUCION</b>	<ul style="list-style-type: none"> <li>No toque las partes o los electrodos bajo carga con la piel o ropa mojada.</li> <li>Aislese del trabajo y de la tierra.</li> </ul>	<ul style="list-style-type: none"> <li>Mantenga el material combustible fuera del área de trabajo.</li> </ul>	<ul style="list-style-type: none"> <li>Protéjase los ojos, los oídos y el cuerpo.</li> </ul>
French <b>ATTENTION</b>	<ul style="list-style-type: none"> <li>Ne laissez ni la peau ni des vêtements mouillés entrer en contact avec des pièces sous tension.</li> <li>Isolez-vous du travail et de la terre.</li> </ul>	<ul style="list-style-type: none"> <li>Gardez à l'écart de tout matériel inflammable.</li> </ul>	<ul style="list-style-type: none"> <li>Protégez vos yeux, vos oreilles et votre corps.</li> </ul>
German <b>WARNUNG</b>	<ul style="list-style-type: none"> <li>Berühren Sie keine stromführenden Teile oder Elektroden mit Ihrem Körper oder feuchter Kleidung!</li> <li>Isolieren Sie sich von den Elektroden und dem Erdboden!</li> </ul>	<ul style="list-style-type: none"> <li>Entfernen Sie brennbares Material!</li> </ul>	<ul style="list-style-type: none"> <li>Tragen Sie Augen-, Ohren- und Körperschutz!</li> </ul>
Portuguese <b>ATENÇÃO</b>	<ul style="list-style-type: none"> <li>Não toque partes elétricas e electrodos com a pele ou roupa molhada.</li> <li>Isole-se da peça e terra.</li> </ul>	<ul style="list-style-type: none"> <li>Mantenha inflamáveis bem guardados.</li> </ul>	<ul style="list-style-type: none"> <li>Use proteção para a vista, ouvido e corpo.</li> </ul>
Japanese <b>注意事項</b>	<ul style="list-style-type: none"> <li>通電中の電気部品、又は溶材にヒブやぬれた布で触れないこと。</li> <li>施工物やアースから身体が絶縁されている様にして下さい。</li> </ul>	<ul style="list-style-type: none"> <li>燃えやすいものの側での溶接作業は絶対にしてはなりません。</li> </ul>	<ul style="list-style-type: none"> <li>目、耳及び身体に保護具をして下さい。</li> </ul>
Chinese <b>警告</b>	<ul style="list-style-type: none"> <li>皮肤或湿衣物切勿接觸帶電部件及鎢條。</li> <li>使你自已與地面和工件絕緣。</li> </ul>	<ul style="list-style-type: none"> <li>把一切易燃物品移離工作場所。</li> </ul>	<ul style="list-style-type: none"> <li>佩戴眼、耳及身體勞動保護用具。</li> </ul>
Korean <b>위험</b>	<ul style="list-style-type: none"> <li>전도체나 용접봉을 젖은 헝겍 또는 피부로 절대 접촉치 마십시오.</li> <li>모재와 접지를 접촉치 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>인화성 물질을 접근시키지 마십시오.</li> </ul>	<ul style="list-style-type: none"> <li>눈, 귀와 몸에 보호장구를 착용하십시오.</li> </ul>
Arabic <b>تحذير</b>	<ul style="list-style-type: none"> <li>لا تلمس الأجزاء التي يسري فيها التيار الكهربائي أو الأقطاب بجلد الجسم أو بالملايس المبللة بالماء.</li> <li>ضع عازلا على جسمك خلال العمل.</li> </ul>	<ul style="list-style-type: none"> <li>ضع المواد القابلة للاشتعال في مكان بعيد.</li> </ul>	<ul style="list-style-type: none"> <li>ضع أدوات وملابس واقية على عينيك وأذنيك وجسمك.</li> </ul>

READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION FOR THIS EQUIPMENT AND THE CONSUMABLES TO BE USED AND FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.

SE RECOMIENDA LEER Y ENTENDER LAS INSTRUCCIONES DEL FABRICANTE PARA EL USO DE ESTE EQUIPO Y LOS CONSUMIBLES QUE VA A UTILIZAR, SIGA LAS MEDIDAS DE SEGURIDAD DE SU SUPERVISOR.

LISEZ ET COMPRENEZ LES INSTRUCTIONS DU FABRICANT EN CE QUI REGARDE CET EQUIPMENT ET LES PRODUITS A ETRE EMPLOYES ET SUIVEZ LES PROCEDURES DE SECURITE DE VOTRE EMPLOYEUR.

LESEN SIE UND BEFOLGEN SIE DIE BETRIEBSANLEITUNG DER ANLAGE UND DEN ELEKTRODENEINSATZ DES HERSTELLERS. DIE UNFALLVERHÜTUNGSVORSCHRIFTEN DES ARBEITGEBERS SIND EBENFALLS ZU BEACHTEN.

			
<ul style="list-style-type: none"> <li>● Keep your head out of fumes.</li> <li>● Use ventilation or exhaust to remove fumes from breathing zone.</li> </ul>	<ul style="list-style-type: none"> <li>● Turn power off before servicing.</li> </ul>	<ul style="list-style-type: none"> <li>● Do not operate with panel open or guards off.</li> </ul>	<b>WARNING</b>
<ul style="list-style-type: none"> <li>● Los humos fuera de la zona de respiración.</li> <li>● Mantenga la cabeza fuera de los humos. Utilice ventilación o aspiración para gases.</li> </ul>	<ul style="list-style-type: none"> <li>● Desconectar el cable de alimentación de poder de la máquina antes de iniciar cualquier servicio.</li> </ul>	<ul style="list-style-type: none"> <li>● No operar con panel abierto o guardas quitadas.</li> </ul>	Spanish <b>AVISO DE PRECAUCION</b>
<ul style="list-style-type: none"> <li>● Gardez la tête à l'écart des fumées.</li> <li>● Utilisez un ventilateur ou un aspirateur pour ôter les fumées des zones de travail.</li> </ul>	<ul style="list-style-type: none"> <li>● Débranchez le courant avant l'entretien.</li> </ul>	<ul style="list-style-type: none"> <li>● N'opérez pas avec les panneaux ouverts ou avec les dispositifs de protection enlevés.</li> </ul>	French <b>ATTENTION</b>
<ul style="list-style-type: none"> <li>● Vermeiden Sie das Einatmen von Schweißrauch!</li> <li>● Sorgen Sie für gute Be- und Entlüftung des Arbeitsplatzes!</li> </ul>	<ul style="list-style-type: none"> <li>● Strom vor Wartungsarbeiten abschalten! (Netzstrom völlig öffnen; Maschine anhalten!)</li> </ul>	<ul style="list-style-type: none"> <li>● Anlage nie ohne Schutzgehäuse oder Innenschutzverkleidung in Betrieb setzen!</li> </ul>	German <b>WARNUNG</b>
<ul style="list-style-type: none"> <li>● Mantenha seu rosto da fumaça.</li> <li>● Use ventilação e exaustão para remover fumo da zona respiratória.</li> </ul>	<ul style="list-style-type: none"> <li>● Não opere com as tampas removidas.</li> <li>● Desligue a corrente antes de fazer serviço.</li> <li>● Não toque as partes elétricas nuas.</li> </ul>	<ul style="list-style-type: none"> <li>● Mantenha-se afastado das partes moventes.</li> <li>● Não opere com os painéis abertos ou guardas removidas.</li> </ul>	Portuguese <b>ATENÇÃO</b>
<ul style="list-style-type: none"> <li>● ヒュームから頭を離すようにして下さい。</li> <li>● 換気や排煙に十分留意して下さい。</li> </ul>	<ul style="list-style-type: none"> <li>● メンテナンス・サービスに取りかかる際には、まず電源スイッチを必ず切って下さい。</li> </ul>	<ul style="list-style-type: none"> <li>● パネルやカバーを取り外したまま機械操作をしないで下さい。</li> </ul>	Japanese <b>注意事項</b>
<ul style="list-style-type: none"> <li>● 頭部遠離煙霧。</li> <li>● 在呼吸區使用通風或排風器除煙。</li> </ul>	<ul style="list-style-type: none"> <li>● 維修前切斷電源。</li> </ul>	<ul style="list-style-type: none"> <li>● 儀表板打開或沒有安全罩時不準作業。</li> </ul>	Chinese <b>警告</b>
<ul style="list-style-type: none"> <li>● 얼굴로부터 용접가스를 멀리하십시오.</li> <li>● 호흡지역으로부터 용접가스를 제거하기 위해 가스제거기나 통풍기를 사용하십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 보수전에 전원을 차단하십시오.</li> </ul>	<ul style="list-style-type: none"> <li>● 판넬이 열린 상태로 작동치 마십시오.</li> </ul>	Korean <b>위험</b>
<ul style="list-style-type: none"> <li>● بعد رأسك بعيداً عن الدخان.</li> <li>● استعمل التهوية أو جهاز ضغط الدخان للخارج لكي تبعد الدخان عن المنطقة التي تتنفس فيها.</li> </ul>	<ul style="list-style-type: none"> <li>● اقطع التيار الكهربائي قبل القيام بأية صيانة.</li> </ul>	<ul style="list-style-type: none"> <li>● لا تشغيل هذا الجهاز اذا كانت الاغطية الحديدية الواقية ليست عليه.</li> </ul>	Arabic <b>تحذير</b>

**LEIA E COMPREENDA AS INSTRUÇÕES DO FABRICANTE PARA ESTE EQUIPAMENTO E AS PARTES DE USO, E SIGA AS PRÁTICAS DE SEGURANÇA DO EMPREGADOR.**

使う機械や溶材のメーカーの指示書をよく読み、まず理解して下さい。そして貴社の安全規定に従って下さい。

請詳細閱讀並理解製造廠提供的說明以及應該使用的銀焊材料，並請遵守貴方的有關勞動保護規定。

이 제품에 동봉된 작업지침서를 숙지하시고 귀사의 작업자 안전수칙을 준수하시기 바랍니다.

اقرأ بتمعن وافهم تعليمات المصنع المنتج لهذه المعدات والمواد قبل استعمالها واتباع تعليمات الوقاية لصاحب العمل.