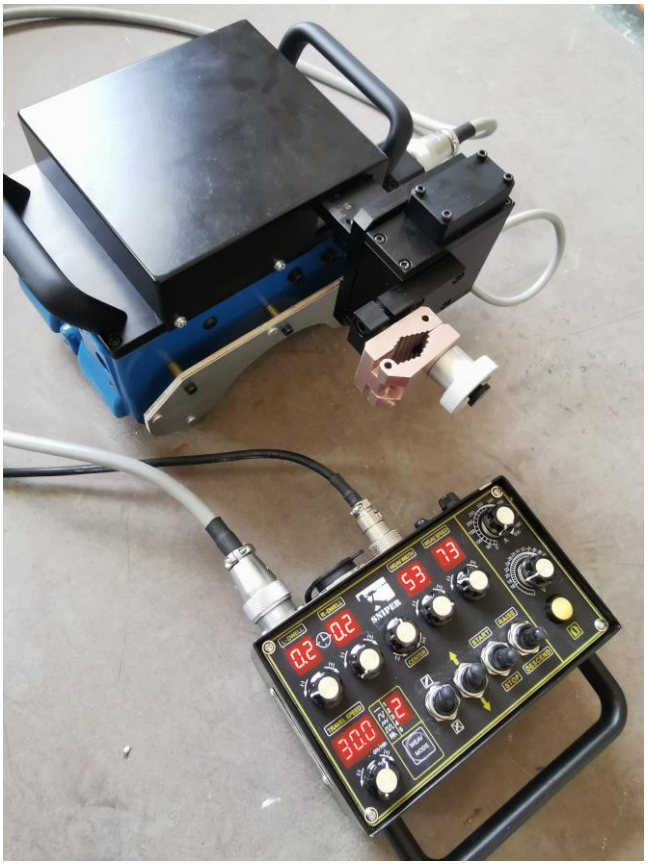
All-position Welding Carriage

MANUAL

MODEL: AFPWC



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Before using this auto welding carriage, please carefully read this "manual." And please put this manual handy for ready access, auto welding carriage can play the best performance.

NOTES

To ensure safe operation, be sure to observe the following

Warning: Please noteto avoid a major personal accident
● clothing, wear safety protective equipment In order to prevent eye irritation and skin burns, be sure to comply with occupational safety and health rules, wear appropriate protective equipment. ● Replace protective gas Precautions To prevent harmful gas poisoning and asphyxia (welding fumes and gases hazardous to health), must comply with Occupational Health and Safety Law Enforcement Decree of the machine against the rules on the dust, the installation of local exhaust, or breathing with the use of effective protection apparatus.

Note: To prevent burning and fire like machine accident
● Prevent fires caused by overheating and burning machine Please to keep flammable materials away more than 50cm. ● Prevent sparks caused by the fire and the burning machine. Remember the spark (splash, flash) spilled on combustible materials. ● Manual reading Carefully read this manualbefore using the machine.

◆ Others

This carriage has a strong magnet on the track. And the magnet's temperature must be lower than 100℃ (212℉), otherwise it will destroy the magnet.

Directory

1. Overview

CO2 auto welding carriage is widely used in ships, bridges, locomotives, steel, petrochemical and other industries, for welding a variety of welded structures, such as: strengthening ribs, ribs, cross-site welding, box-beam welding, etc. Its main advantages are:

- Reduce labor intensity and improve the working environment.
- To avoid the human factor caused by the poor weld quality. In general the defect rate in the manual about 20%, while the use of automatic welding carriage without resulting in poor welding rate, so its overall efficiency, compared with manual welding by nearly 200%.
- High degree of automation to ensure the stability of the welding quality.
- Do not need highly-skilled technical workers.

AMP-N150, automatic welding is realized by fixing the pipe or moving the pipe by rotating welding trolley. High-efficiency and low-cost CO2 gas shielded welding is adopted in the welding process

Small size, light weight makes mobile and easy to use. Vertical welding applications can also be applied to ensure good welding quality.

1. The pipeline all-position automatic welding machine is composed of three parts: the welding machine, the control system and the welding car.

2. Control system. The motor swing device and the welding torch clamping regulator can be adjusted up and down, and the welding torch clamping regulator can be fixed on the welding torch clamping regulator. The welding torch clamping regulator can adjust the welding torch up and down, left and right positions and the welding torch Angle, so that the welding torch falls to the most suitable position for the workpiece;The position of welding torch can be adjusted from top to bottom or left to right.Swing frequency, width, left and right side pause time and up and down of welding torch are adjusted by the remote control box to meet the needs of different working conditions of the workpiece.

3. The wire feeding mechanism selects the stereotyped products, and customers can choose their own brands.The company chooses the domestic and foreign first-class welding power supply, if the customer chooses, it should be specified in the contract, by the company design supporting.

4. Configuration list

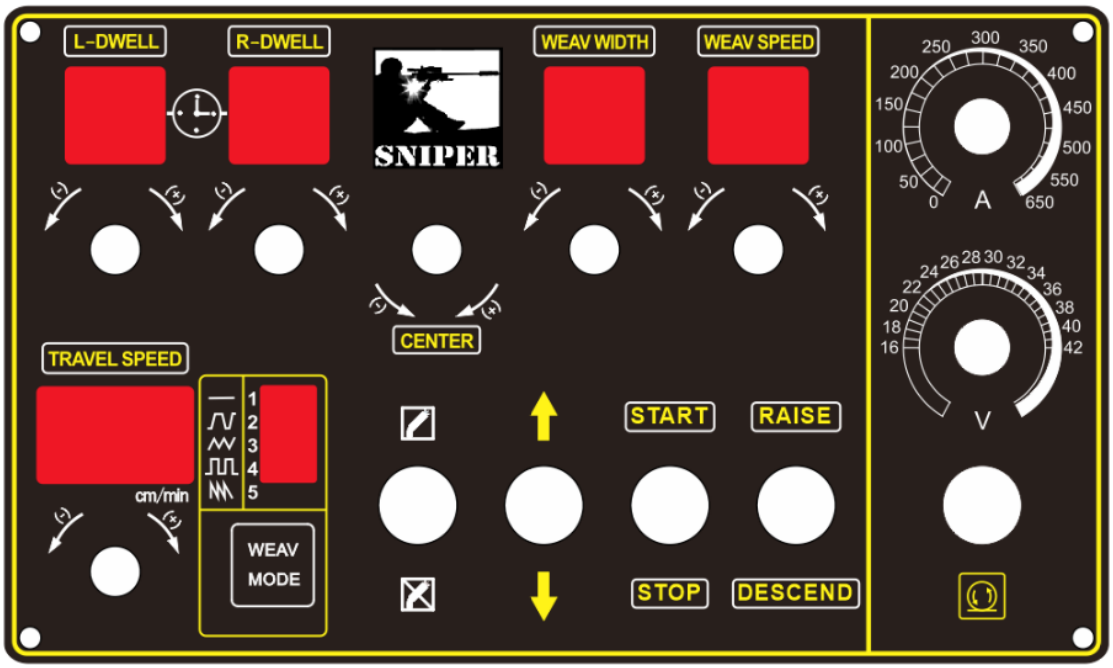
(1) control systems (remotecontrol box) X1

(2) welding carriage X1

(3) control line 5M

(5) common tools X1

(6) manual

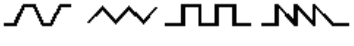


1. L-DELL: adjust left dwell time;
2. R-DWELL: adjust right dwell time;
3. CENTER: adjust the center position;
4. WEAV WIDTH: adjust the swing width;
5. WEAV SPEED: adjust the swing speed;
6. TRAVEL SPPED: adjust travelling speed;
7. WEAV MODE;
8. Welding/non-welding switch;
9. Front/back direction switch: adjust travelling direction;
10. START/STOP;
11. RAISE/DESCND：adjust the welding torch's height.
12. Function for welding machine:
    1) A: adjust current;
    2) V: adjust voltage;
    3) Inching wire feeding.

    * standard type: for Panasonic or similar interface;

    If not, please contact with our engineer.

1. Applicable pipe diameter: above DN150;
2. Applicable wall thickness: 4-50mm;
3. Applicable materials: carbon steel, stainless steel, alloy steel, low-temperature steel, etc.(Stainless steel optional customized track);
4. Applicable weld: all kinds of pipe segment weld, such as pipe-pipe weld, pipe-elbow weld, pipe-flange weld;
5. Drive system: brushless motor worm drive;
6. Speed control mode: press the button to add or subtract speed control;
7. Adjustment mode: electric adjustment;
8. Oscillation system: brushless motor oscillation;
9. Welding method: gas shielded welding.

size (L*W*H)		300*300*220mm
weight		11.8KG
Input Power		AC100V~240V，50/60Hz
Running Way		Four wheels
Running Speed		0~53cm/min
Drive Motor		DC24V, 12W, 5000 RPM DC brushless motor
Install Way		Magnet wheel
Torch Clamp	Torch diameter	∮14 ~ 16mm
	Up/down	0~30mm
	Left/right	0~30mm
Weaving Mode		
Weaving Speed		0 ~ 2600mm/min
Weaving Width		0-30mm
Left、Right Stop		0-9.9S

a) Put the carriage on the work piece or the pipe;

b) Adjust the welding torch position by the remote controller;

c) Setting the swing parameters by the remote controller, increase or decrease the swing speed, swing width, left stop, right stop;

d) Setting the welding current, voltage and the running speed;

e) Determine to swing during the welding process or not, based on the groove width. Swing if the groove is wider enough. If the groove is narrow, decrease the swing width or stop swing;

f) Adjust the welding direction by the remote controller;

g) Push the welding button when the carriage start to running;

h) Three steps you need to do before the welding:

   i. Setting the swing parameters and torch position;

   ii. Setting the running parameters, then start to run;

   iii. Setting the welding current and voltage, then welding.

i) During the welding process, keep the welding torch aligned with the center of the welding seam; Push the left / right button to adjust;

j) When finished the welding, remove the carriage, and clean the welding surface.

1. Welding position: The welding torch is be positioned in the vertical pipe.
2. Swing welding
    1) Before welding, press the button to swinging positioning, observe the location of the gap are consistent with bevel edge. Usually, leave a gap on both sides of the cover. In normal, the filling thickness of the gas shielded welding machine is about 2mm.If covering filling thickness is greater than 2mm, swinging width should be smaller than the weld width, reducing welding speed in time, pay attention to adjust the residence time of on both sides of weld bead, avoid to causing weld slag on both sides.The swing width of the middle filling layer shall be subject to the width of the fusion line in the groove, and the residence time on both sides of the groove shall be adjust correctly. In actual welding, the free transition of the weld pool shall be subject to the guarantee.
    2) When the groove clearance of the filling layer is small, the first filling can be carried out with small swing and small current and voltage.
    3) The swing speed will affect the welding and welding quality, because the speed of the swinging and welding specification, welding speed (the speed of the welding carriage), both sides pause time is together. In principle, is a welding molten pool transition time is given priority to, the speed of the swinging, and pause time on both sides) can guarantee on both sides of weld pool before and after each covers more than half a molten pool advisable, form zigzag welding speed is too slow. Too fast speed will cause the weld bead on both sides of the weld bead fuse is not good, this kind of situation in the filling layer welding is easy to produce slag inclusion.
    4) The left and right pause time for swing shall be subject to the fusion of the weld pool and the edge of the weld pass during the welding process. Meanwhile, the front and back weld passes shall be superposition within one swing cycle. Generally, the left and right pause time shall not exceed 100 [i.e., 1 second].

For welding pass with wrong side, the pause time should be increased appropriately on the wrong side to ensure the weld line fusion forming well.

5) The swing mode of digital control is adopted, and the adjustable speed has a wide range in the welding process.

3. Welding specifications

1) The dry elongation length of the welding wire (the length of the welding wire extending from the conducting nozzle) should be 10mm to 15mm. Too long is likely to cause instability of the welding and poor gas protection;Too short molten pool is not easy to observe, easy to plug welding nozzle, burn conductive nozzle.

2) It is advisable for the gas flow rate to be about 25L/min according to the scale of the equipped flowmeter. Too large or too small will cause poor gas protection.

3) The welding current, voltage, the current, voltage, welding current is 180 a 28 v), welding voltage, welding in the process of actual welding current, voltage parameters matching situation depending on experience judgement, based on current, welding voltage, welding arc length increases, then cause soft, drift, welding arc is not stable, may even burn out conductive mouth;Welding voltage decreases, welding arc length decreases, welding spatter increases, arc runout, welding wire butt pool phenomenon, welding bead appearance formed welding, resulting in red wire, non-combustion, welding wire burst. Take voltage as reference, contrary to the above situation.The normal arc length is about 2mm.

4. Setting of welding machine

1) USES the overseas advanced welding power source, just press the button ignition can realize automatic welding, arc extinguishing set to ensure the welding quality of welded joint, the end of the especially in the big specification, when welding with arc function, can guarantee the welding arc in forming, crater arc current, voltage must adjust in advance and adjustment methods with reference to electric welding specifications;

2) Select solid core or flux-cored wire switch by using the wire;

3) The gas-shielded welding machine is generally equipped with power saving function. It will automatically cut off the power supply of the main machine when the welding stops for about 7 minutes.

1）Control box power light is not lit

Cause	Solutions
Bad cable connector	Replace cable
Fuse burned	Replace fuse
No power	Check power

2) Start button does not work

Cause	Solutions
Wire contact poor	Remove welding slag
Drive motor burned out	Replace or repair the drive motor
Welding / no-welding switch damaged	Check circuit or replace switch

3）Weld torch position is inconsistent with the objectives

Cause	Solutions
Touch holder not tightened	Tighten the holder

4）slides adjust not flexible

Cause	Solutions
Slides parts of sediment	Remove sediment and add oil

5）Stop phenomenon during welding

Cause	Solutions
Travel surface barrier	Remove barrier
Sediment on guide wheels	Remove sediment

6）Stop button does not work

Cause	Solutions
Stop button failure	Replace button
Arc-create switch "on" position	Arc-create switch to "off" position

7）Oscillator is not working properly

Cause	Solutions
Swing motor not work	Check motor, connect cords and knobs

7. Maintenance

1) Timely clean up the work site to avoid disorderly objects horizontally touching the equipment in the work site, which will affect the normal operation of the equipment;
2) Machine maintenance: check the worm gear and worm twice a month for lack of oil;
3) The welding trolley oscillators should be refilled or changed twice a month [not easy in winter];
4) According to the actual situation, regular maintenance and maintenance, ensure the welding power, control system, remote control box, namely the cable clean;
5) Regularly check whether the wire head falls off, the plug is worn, the cable is damaged, the components are damaged, if any, it should be eliminated in time;
6) If abnormal conditions such as abnormal noise and smell are found during operation, the cause should be found in time and the fault should be eliminated;
7) Avoid getting wet. If water enters the water, it should be treated with appropriate measures before using with electricity.Otherwise, components will be damaged, or leakage phenomenon;
8) Each transmission, such as synchronous belt pulley and lead screw, should be checked regularly to ensure that there is no lag in flexible operation.

8. Application of gas ratio and welding wire

1) Solid core welding wire;Solid core welding wire is generally used for thin wall pipes with wall thickness of 5-8mm;Current is around 120 voltage 18.6
2) Solid core wire melting point low current, so the corresponding slow welding speed
3) It is recommended to use a gas ratio of AR80%+CO2 20% mixture, and to use this ratio of gas weld bead appearance to form bright and fine lines
4) Flux-cored wire;Flux-cored wire is generally used for 12MM -- 50MM thick wall tube, with high melting point, high current, high efficiency;When filling the first time, put the current around 170 and the voltage around 22.6;Second time - N time after the current 200 or so voltage 28.5 or so;The gas CO2 is 100%.
5) Stainless steel; 3.Solid core welding wire is generally used for pipe wall between 5MM and 12MM. The welding method mode is 1. The current of two-point arc extinguishing method is about 270 and the voltage is about 30.5.Two-point arc extinguishing oscillation should not be too wide, generally around 10MM;Gas ratio AR98%+CO2 2%
6) Stainless steel; 4.Flux cored wire is mainly used for thick wall, generally 12MM -- 50MM;Stainless steel flux cored wire is different from carbon steel flux cored wire. There are two methods for reference.In the second mode, the arc extinguishing current is about 200 and the voltage is about 28.5.The gas CO2 is 100%.
7) For all of the above USES, gas heating, welding power supply with its own plug.