

THCD-11 绑扎钢碗自动焊接小车

THCD-11 Automatic welding trolley for binding steel bowl

一、概要及特点:

I. Summary and features:

1、概要:

1. Summary:

THCD-11 钢碗焊接机是一款用于船舶焊接制造的设备，用于汽车滚装船绑扎碗焊接的专用焊接设备。

THCD-11 steel bowl welding machine is a kind of equipment used for ship welding and manufacturing, and a special welding equipment used for welding binding bowls of automobile ro-ro ships.

该设备满足汽车滚装船不同直径绑扎碗的自动化焊接，设备体积小巧，移动安装省时省力，操作方便。设备利用绑扎碗外径定位，开关磁体吸附安装，夹持船厂现场的焊枪完成圆周角焊接或平对接，程序设定焊接距离后自动停止，焊接成型美观一致。大大减低了工人的劳动强度，一人多机作业，可以提高 3-4 倍以上工作效率。

This equipment can meet the requirements of automatic welding of binding bowls with different diameters on automobile ro-ro ships. It is small in size, time-saving and labor-saving in moving and installing, and convenient to operate. The outside diameter of the binding bowl of the equipment is positioned, the switch magnet is adsorbed and installed, and the welding gun on the shipyard site is clamped to complete circumferential angle welding or flat butt joint. After the welding distance is set by the program, it will automatically stop, and the welding shape will be beautiful and consistent. The labor intensity of workers is greatly reduced, and the work efficiency can be increased by more than 3-4 times by one

person with multiple machines.

2、特点:

3、Features:

(1)本设备可满足多种直径的绑扎碗的圆周焊接，装配有摆动器可完成钢碗外圆平对接焊接。

(1) This equipment can meet the requirements of circumferential welding of binding bowls with various diameters, and it is equipped with a swinging device to complete butt welding of cylindrical steel bowls.

(2)焊接机体积小，重量轻，一人即可操作，适合船体狭窄空间作业，通过开关磁吸磁体吸附安装在绑扎碗顶面，安装和移动省时省力。

(2) The welding machine is small in size and light in weight, and can be operated by one person, which is suitable for the narrow space operation of the hull. It is adsorbed and installed on the top surface of the binding bowl by switching the magnetic attraction magnet, which saves time and labor in installation and movement.

(3)焊接机通过更换不同直径的定位部件定位安装不同直径的绑扎碗，定位精度高，操作简单，降低了对操作人员的要求。

(2) The welding machine locates and installs binding bowls with different diameters by replacing positioning parts with different diameters, which has high positioning accuracy and simple operation, and reduces the requirements for operators.

(4)焊接机机身旋转通过齿轮传动，稳定耐用。面板设置可完成 1/3、1/2、1 圈三种不同的焊接模式。

(3) The welding machine body rotates through gear transmission, which is stable and durable. The panel can be set to complete three different welding modes: 1/3, 1/2 and 1 turn.

(5)面板功能按钮选择钢碗直径数值，焊接时面板会数码显示实际焊接速度。

5] The function button of the panel selects the diameter value of the steel bowl, and the panel will digitally display the actual welding speed during welding.

(6)焊接机设计有延时启动旋转功能，待焊接电弧稳定后进行旋转焊接，焊接终点位置可以变化设定，使焊缝首尾交接处成型美观饱满。

[6] The welding machine is designed with the function of delayed start rotation. After the welding arc is stable, the rotating welding is performed, and the welding end position can be changed and set, so that the end-to-end joint of the weld is beautiful and full.

二、适用工件及形状：

Second, the applicable workpiece and shape:

1、HCD500-1P焊接机适用于汽车滚装船绑扎碗的外圆焊接，可实现常规绑扎碗的角焊接和嵌入式绑扎碗的外圆平对接。可满足直径 180mm-300mm，高度 40mm-50mm的绑扎碗焊接。

1. HCD500-1P welding machine is suitable for the external circle welding of binding bowls of automobile ro-ro ships, which can realize the corner welding of conventional binding bowls and the external circle butt joint of embedded binding bowls. It can meet the requirements of binding bowl welding with diameter of 180mm-300mm and height of 40mm-50mm.

2、工件应为导磁材料，若不具导磁性则焊接机磁体无法吸附于工件上，会造成小车运行不稳无法完成焊接。同一规格绑扎碗外径应一致统一，以方便焊接机定位安装。

2. The workpiece should be made of magnetic conductive material. If there is no magnetic conductivity, the magnet of the welding machine can't be adsorbed on the workpiece, which will result in the unstable operation of the trolley and the welding can't be completed. The outside diameter of binding bowl of the same specification

should be uniform to facilitate the positioning and installation of welding machine.

3、适用于Φ1.6mm及以下普通焊丝及药芯焊丝。

3. Applicable to common welding wires and flux-cored wires with ϕ Φ1.6mm and below.

三、规格及技术参数：

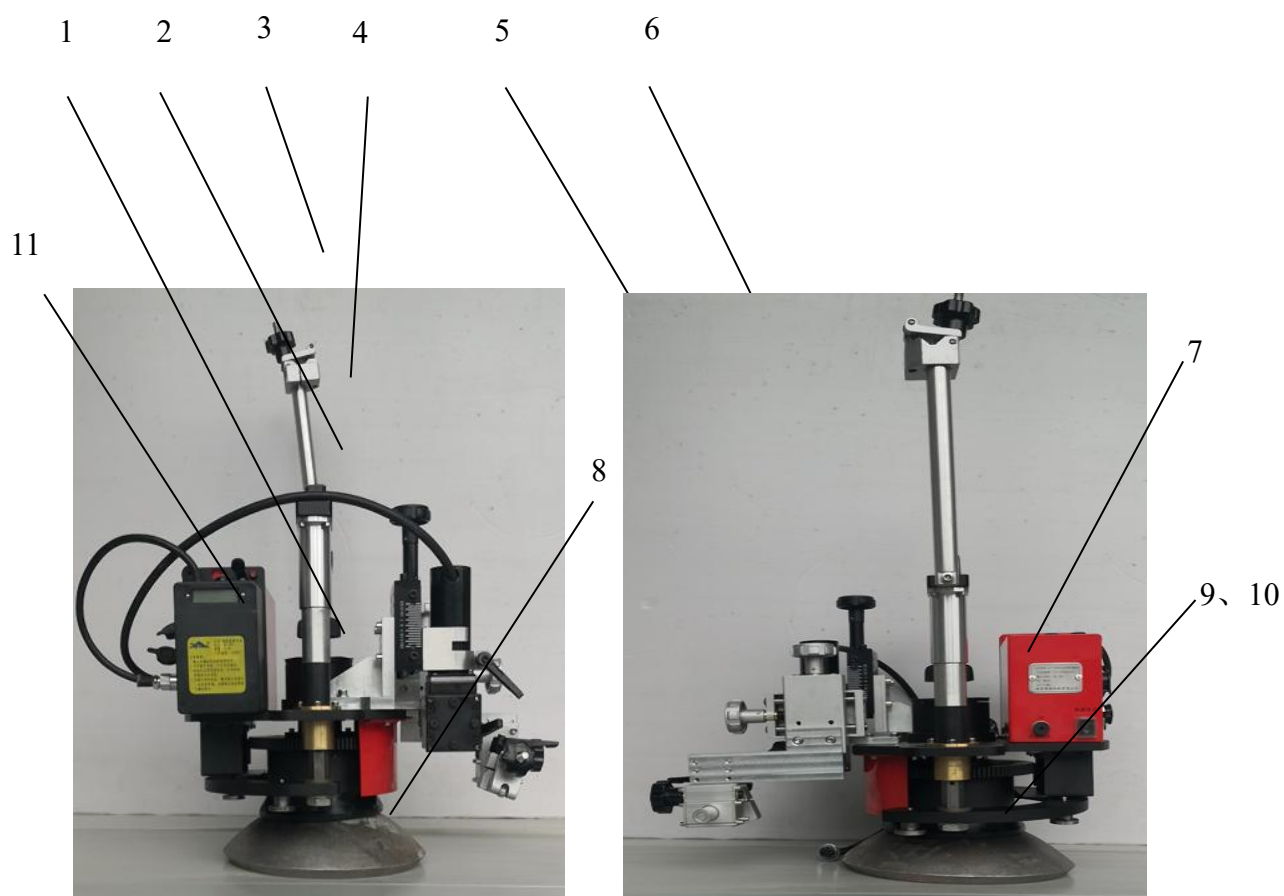
Specifications and technical parameters:

项 目	名 称	技术参数
电 源	24V 锂离子电池	标称电压 24V， 电池容量 4.0Ah
行 走	驱动方式	齿轮驱动
	焊接速度	35~930mm/min
适用钢碗外圆直径（选配）		φ187mm/φ219mm/φ227mm/φ250mm
焊接圈数	0.3	1/3 圈
	0.5	1/2 圈
	1.0	1 圈
摆 动	摆动角度	0~±8°
	摆动速度	0~40 周/分
	左、右停留时间	0~2.5S
焊 枪 调 节	横向移动	40mm
	垂直移动	40mm
	45 度方向	40mm
	焊枪绕 X 轴转动	360 度
吸 附 力		25kg
重 量		12.5kg
外形尺寸（长×宽×高）		440×360×500mm
Item	Naming	technical parameter
Electric source	24V lithium ion battery	Nominal voltage 24V, battery capacity 4.0Ah
Ok, go	type of drive	Gear drive
	welding speed	35~930mm/min
Applicable diameter of steel bowl (optional)		φ187mm/φ219mm/φ227mm/φ250mm
Number of welding turns	0.3	1/3 turn

	0.5	Half a turn
	1.0	1 circle
Swing	Swing angle	0~±8°
	Swing speed	0 ~ 40 weeks/min
	Left and right residence time	0~2.5S
Welding gun adjusting joint	move horizontally	40mm
	Vertical movement	40mm
	45 degree direction	40mm
	Rotate around x axis of welding gun.	30 degrees
Suction force		25kg
Machine Weight		12.5kg
Dimensions (length× width× height)		440×360×500mm

四、结构名称

Structure name

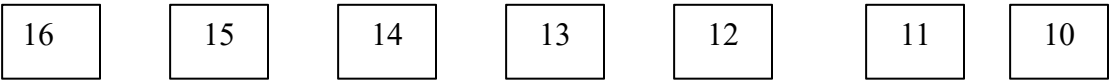
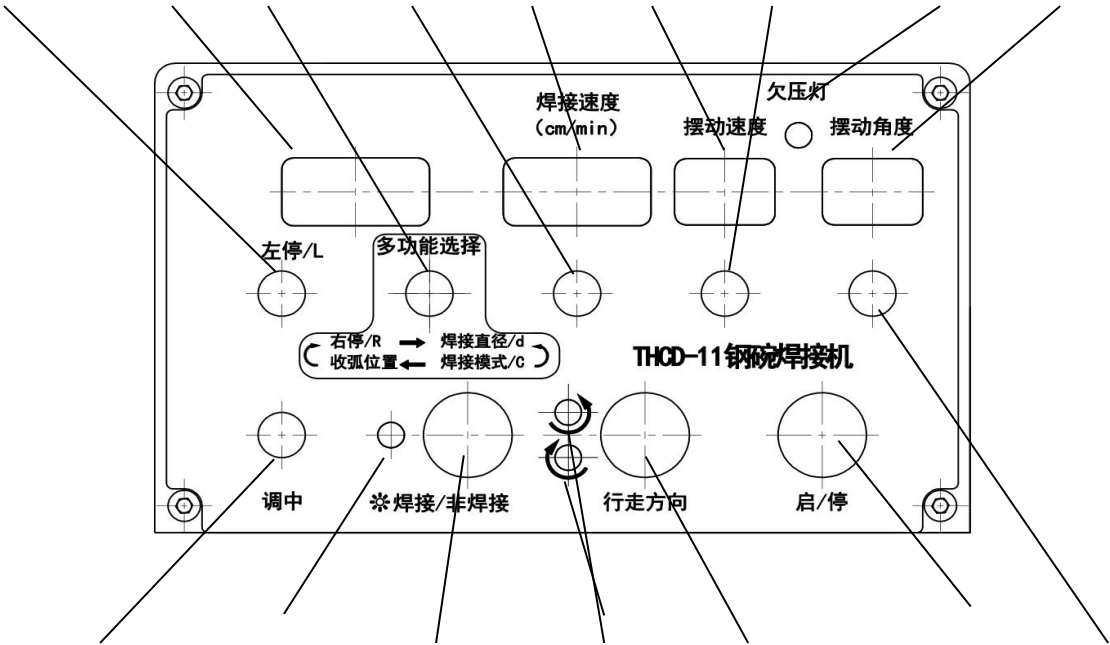
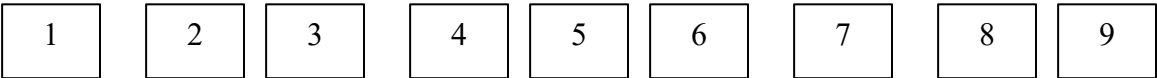


编号	名 称	功 能
1	底座部件	焊接机通过底座部件吸附绑扎碗上，是旋转机构，驱动机构和控制盒支撑总成，驱动电机通过传动机构使焊接机整体旋转，完成焊接作业。
2	定位柱	用于焊接机与绑扎碗安装导向，便于定位柱定位后自动回弹不干涉焊接
3	电缆固定夹头	用于夹持焊接焊枪电缆。有固紧装置；
4	提 手 把	用于手提小车，便于小车安装和搬运。
5	十字滑块调节组件	在一定范围内调节角焊缝焊枪前后位置。
6	摆动器调节组件	带动焊枪进行垂直于焊缝方向的摆动，通过电气旋钮调节摆动角度大小，满足宽焊缝及熔池搅动需要。
7	控制盒	用于小车的电气操作，具体操作内容见 5.1 条 控制盒
8	磁体压圈	配套磁体牢牢的吸附工件，以防焊接设备立不稳并出现偏移
9	定位圈	起导向安装和定位柱固定作用，
10	定位柱	用于钢碗定位与导正功能，
11	24V-4AH 锂电池组	给小车提供电源，减少其对外界电源依赖。
numb er	Naming	Gongneng
one	Base part	The welding machine is attached to the binding bowl through the base part, and there are a rotating mechanism, a driving mechanism and a control box support assembly. The driving motor rotates the welding machine as a whole through the transmission mechanism to complete the welding operation.
2	Positioning column	It is used to guide the installation of welding machine and binding bowl, which is convenient for automatic rebound of positioning column after positioning without interference in welding.
three	Cable fixing chuck	Used for clamping welding torch cable. There are fastening devices;
four	Handle	Used for portable trolley, which is convenient for trolley installation and handling.
five	Cross-slide adjusting assembly	Adjust the front and rear positions of fillet welding guns within a certain range.
six	Oscillator adjusting assembly	Drive the welding gun to swing perpendicular to the weld direction, and adjust the swing angle through the electric knob to meet the needs of wide weld and molten pool agitation.
seven	control box	Used for the electric operation of the trolley. See Article 5.1 Control Box for specific operation contents.
eight	Magnet pressing ring	The matching magnet firmly absorbs the workpiece to prevent the welding equipment from standing unsteadily and shifting.
nine	locating ring	Play that roles of guide installation and positioning column fixing,
10	Positioning column	Used for positioning and guiding the steel bowl,

11	24V-4AH Lithium battery pack	Provide power to the trolley, and reduce its dependence on external power.
----	---------------------------------	--

五、控制盒 功能键名称功能

Control box function key name function

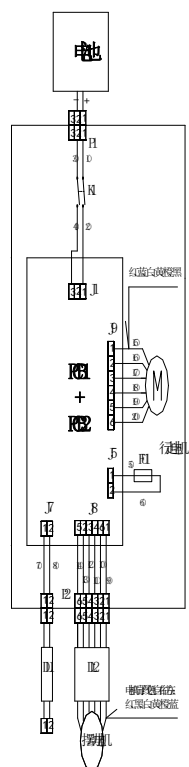


编号	名 称	功能
1	摆动左停时间 调节电位器	旋转电位器旋轴以调节摆动左停时间，顺时针参数增加，逆时针参数减小。
2	多功能选择 显示数码管	显示格式为 X Y.Y X 为显示标记，可通过按动多功能选择调节电位器旋轴在 R-d-C-间循环切换。其中 R 表示摆动器右极限位置停留时间；d 表示钢碗直径；C 表示焊接模式；-表示收弧位置微调。旋转左停电位器可切换会 L，显示左停时间。
3	多功能选择 调节电位器	电位器旋轴带按下功能，用于显示参数的切换（详见上一条目）； 旋转电位器旋轴以调节与显示参数标记相对应的时间参数，顺时针参数增加，逆时针参数减小。
4	焊接速度 调节电位器	旋转电位器旋轴以调节焊接速度值，顺时针数值增加，逆时针数值减小。
5	焊接速度 显示数码管	显示格式为 XXX，用于显示焊机焊接速度实际值（与所选钢碗直径相关）。
6	摆动速度 显示数码管	显示格式为 XX，用于比例显示摆动速度。
7	摆动速度 调节电位器	旋转电位器旋轴以调节摆动速度值，顺时针增加，逆时针减小。
8	欠压指示灯	用于指示电池电量，欠压指示灯亮显则提示电池电量已不足，需进行充电。
9	摆动角度 显示数码管	显示格式为 XX，用于比例显示摆动角度。
10	摆动角度 调节电位器	旋转电位器旋轴以调节摆动角度值，顺时针增加，逆时针减小。
11	启停开关	启停状态复用按钮，按动进行启-停状态切换；
12	运行方向开关	用于切换小车的运行方向，每按动一次，小车行走方向在顺时针-逆时针运转方向间切换一次。
13	行走方向指示灯	指示小车的旋转方向。
14	焊接/非焊接控制开关	用于控制焊接/非焊接状态。
15	焊接指示灯	指示灯亮，表示焊接状态；反之则为非焊接状态。
16	调中电位器	用于调节摆动器摆动中心的位置，顺时针右偏，逆时针左偏。
number	Naming	function
one	Swing left stop time Adjusting potentiometer	Rotate the potentiometer shaft to adjust the swing left stop time. The clockwise parameter increases and the counterclockwise parameter decreases.
2	Multifunctional selection Display nixie tube	The format is X Y.Y To display the mark X, you can press the rotary shaft of the multifunctional selective adjustment potentiometer to switch circularly between R-D-C-. R represents the dwell time of the

		right extreme position of the swinger; D represents the diameter of the steel bowl; C indicates welding mode; - Indicates fine adjustment of arc closing position. Rotate the left stop potentiometer to switch the meeting L and display the left stop time.
three	Multifunctional selection Adjusting potentiometer	<p>The rotary shaft of potentiometer has the function of pressing, which is used to display parameter switching (see the previous item for details);</p> <p>Rotate the potentiometer shaft to adjust the time parameter corresponding to the displayed parameter mark. The clockwise parameter increases and the counterclockwise parameter decreases.</p>
four	welding speed Adjusting potentiometer	Rotate the potentiometer shaft to adjust the welding speed value. The clockwise value increases and the counterclockwise value decreases.
five	welding speed Display nixie tube	The format is XXX, which is used to display the actual welding speed of the welding machine (related to the diameter of the selected steel bowl).
six	Swing speed Display nixie tube	The display format is XX, which is used for proportional display of swing speed.
seven	Swing speed Adjusting potentiometer	Rotate the potentiometer shaft to adjust the swing speed value, which increases clockwise and decreases counterclockwise.
eight	Undervoltage indicator lamp	It is used to indicate the battery power. When the undervoltage indicator lights up, it indicates that the battery power is insufficient and needs to be charged.
nine	Swing angle Display nixie tube	The format is XX, which is used to display the swing angle proportionally.
10	Swing angle Adjusting potentiometer	Rotate the potentiometer shaft to adjust the swing angle, which increases clockwise and decreases counterclockwise.
11	Start-stop switch	Start-stop status multiplexing button, press to switch the start-stop status;
12	Running direction switch	Used to switch the running direction of the trolley. Every time the trolley is pressed, the running direction of the trolley is switched between clockwise and counterclockwise.
13	Walking direction indicator	Indicates the rotation direction of the trolley.
14	Welding/non-welding control switch	Used to control welding/non-welding status.
15	Welding indicator lamp	The indicator light is on, indicating the welding status; Otherwise, it is in a non-welded state.
16	Medium potentiometer	Used to adjust the position of the swing center of the swinger, clockwise to the right and counterclockwise to the left.

Electrical principle

Electrical principle



七、产品照片

VII. Product photos



八、焊接工件附图：

Eight, welding workpiece attached figure:

