



## Automatic stainless steel crimping machine

# OPERATION INSTRUCTIONS



**Ningbo XiHe Automation Equipment Co., Ltd.**

**Add:**No. 28, Jinteng Road, Wuxiang Town, Yinzhou District, Ningbo City, Zhejiang ,CHINA

**Tel:**0574-88328237

**Fax:**0574-88328273

**Mobile:** 17306515205



# CONTENT

<b>Statement</b> .....	4
<b>一、 Preface</b> .....	4
<b>二、 Product working conditions</b> .....	4
2.1Working conditions .....	4
2.2working environment .....	5
<b>三、 Safety precautions</b> .....	5
3.1Electricity safety .....	5
3.2Mechanical equipment hurts .....	5
3.3Comprehensive preventive measures .....	5
3.4Precautions for installation and debugging .....	5
<b>四、 Equipment introduction</b> .....	6
4.1Equipment picture .....	6
4.2Equipment introduction .....	6
4.3Equipment technical parameters .....	7
4.4Equipment characteristics .....	8
<b>五、 Maintain</b> .....	错误！未定义书签。
5.1Equipment maintenance .....	9
5.2Daily maintenance .....	9
<b>六、 Common fault analysis and elimination</b> .....	9
<b>七、 Operation essentials</b> .....	10
7.1Operation preparation .....	10
7.2Cylinder magnetic switch position confirmation .....	10



八、 <b>Controller introduction</b> .....	11
8.1Features of the control system .....	11
8.2Touch screen button switch introduction .....	11



# STATEMENT

Without the permission of Ningbo Jinshihong Machinery Equipment Co., Ltd., any organization or individual shall not extract or copy the content of the document without authorization, and shall not spread it in any form.

## 一、Preface

Thank you for purchasing and using the Automatic stainless steel crimping machine. This manual is the use and maintenance information of this equipment.

In order to ensure the safety of the operator and maintain the excellent performance of the equipment for a long time, before using the equipment, please read this manual carefully and save it for subsequent use to avoid danger or damage to the machine during operation.

This machine equipment is upgraded or updated at any time without notice, please understand! If you have any further technical or use problems, please contact our company in time.

## 二、Product working conditions

### 2.1 Working conditions

·Ambient air range

Working hours 5 ~40℃

During transportation and storage 0℃ ~40℃

·Air relative humidity

At 35℃ ≤50%

At 20℃ ≤90%

·The content of dust, acid, corrosive gas and other substances in the surrounding air does not exceed the normal content.

·The altitude does not exceed 1000 meters

·Grid voltage fluctuation:  $\leq \pm 10\%$  (when the grid frequency is the rated value)

·Grid frequency fluctuation:  $\leq \pm 1\%$  (when the grid voltage is the rated value)



## **2.2 Working environment**

The product should be placed in a dry, ventilated and dust-free environment away from direct sunlight, rain, gas vapor, chemical deposition and corrosive media that seriously affect the use of the equipment, and avoid violent vibration and turbulence.

## **三、 Safety Precautions**

### **3.1 Electricity safety**

The basic principle of preventing electric shock is not to touch the two poles of voltage electrical equipment at the same time. The specific precautions are as follows:

- 1、 Before operation, you must wear qualified protective equipment, such as safety gloves, insulating shoes, and all labor protection equipment must be dry and undamaged;
- 2、 Before servicing and testing the equipment, cut off the power supply to prevent electric shock.

### **3.2 Mechanical equipment hurts**

When the equipment is working, be sure to keep hands, hair, clothing and tools away from mechanical movement, pneumatic actuators and other operating mechanisms. Pay attention to pneumatic and mechanical pressure components that hurt people. Operators are not allowed to wear loose clothing and accessories.

### **3.3 Comprehensive preventive measures**

- 1、 Ensure equipment power safety measures;
- 2、 Only skilled electricians can work on high-voltage equipment;
- 3、 The equipment safety warning signs must have clear signs and be readily available;
- 4、 During the operation of the equipment, the lubrication and maintenance of the equipment cannot be carried out.

### **3.4 Precautions for installation and debugging**

1. After opening the package, confirm whether it is the model you ordered.
2. Check whether the equipment is damaged during transportation. If there is any damage, please contact our after-sales service.
3. Our company will not bear any responsibility for equipment damage or other



losses caused by not strictly complying with the operating requirements specified in this manual.

4. After 7 days of installation and commissioning, our company cannot return the goods without reason.

5. Before installation and commissioning, please prepare 5 square meters of three-phase five-wire wires (the number of meters required according to your company's operating site), one 40A power switch, one bucket of purified water, about 20L, and several 10 mm air pipes. Compressed air less than 0.6MPa, steel strip materials, etc.

6. After installation and commissioning, our after-sales personnel will teach your company how to operate. Please be sure to send someone to study carefully.

## 四、Equipment introduction

### 4.1 Equipment picture:



### 4.2 Equipment introduction:

The automatic crimping machine is based on the automatic laser welding machine, and the next process is continuous. It has the advantages of high efficiency, high quality, high energy saving, low cost, simple and convenient operation, and wide application range. It is ideal for the kitchenware production industry. Hemming



equipment. Below, we will elaborate on its operating principles, conditions of use, functions of each part, and daily maintenance.

1.The automatic crimping machine is an ideal special crimping equipment designed and manufactured by Ningbo Jinshihong Machinery Equipment Co., Ltd. according to the technical requirements of steel belts for kitchenware manufacturers;

2.The equipment has a wide range of applications, using touch screen digital input to control operation settings, simple and convenient operation, and easy to replace products;

3.Equipment accessories (panel racks, control systems, drive motors, pneumatic components) are all world-renowned brand products, and are equipped with high-precision planetary deceleration devices, which can improve the positioning accuracy of the product;

4.The equipment adopts programmable controller as the main control unit, the circuit is simple, highly integrated and intelligent, which reduces the failure rate and is convenient for maintenance and maintenance;

5.The crimping machine refers to moving the product steel ring to the crimping wheel to deform it to obtain the shape of the product crimping, and to achieve the required crimping by controlling the crimping speed, crimping depth, and the position of the crimping wheel. The effect, the advantage is that the mold replacement efficiency is fast, the operation is simple and the controllability is strong.

#### **4.3Equipment technical parameters:**



Name	Unit	Technical parameters
Equipment size	mm	1100*1500*2000
Equipment weight	kg	900
Two-step feeding size	mm	1850*900*700
Two-step feeding weight	kg	150
Total power	KW	3
Required air pressure	Mpa	0.5~0.7
Input voltage	V	380VThree-phase five-wire
Rated frequency	HZ	50
External cable standard		4*3+2.5*2 (U V W N PE)
Crimping speed	pcs/min	8-12

#### 4.4 Equipment features:

1.The steel ring welded by the welding machine is directly transferred to the crimping clamping and shaping station through the three-step feeding mechanism, and waiting for the next process of the crimping machine.

2、 The up and down movement, back and forth movement, crimping wheel position and spindle rotation are all controlled by Huichuan servo motor to control the reclaiming position of steel ring. The depth and position of crimping are controlled by parameters. It has the advantages of high control precision, low failure rate and simple operation.

3 、 The crimping adopts four high material crimping wheels, which are completed and adjusted by four eccentric shafts, and the operation is simple and convenient.

4 、 The pneumatic components adopt Taiwan Yadeke and Japan SMC executive components, with long service life and high reliability.





## 五、Maintain

### 5.1 Equipment maintenance:

- 1、All guide rails and screw rods shall be greased every six days, and the surface shall be cleaned before filling.
- 2、Each piece of machinery shall not be loose once every three days.
- 3、Various faults encountered during commissioning shall be recorded, such as fault problems and solutions, so as to facilitate the next rapid processing.

### 5.2 Daily maintenance:

1. When working, the pressure of the gas source treatment unit must be adjusted to 0.5-0.6MPa
2. At least one filter drain operation should be carried out every shift (8 hours). Drainage method: cut off the gas source and treat the pressure gas in the two-piece air inlet and exhaust path. The pressure gauge value is 0. In this state, the filter automatically drains. After the operation is completed, it must be confirmed that the water collected in the filter has been discharged
3. Check the oil level of the oil cup of the oil feeder once a week to ensure that there is oil in the oil cup. The oil feeder uses isovg32 or lubricating oil of the same level. The oil output is adjusted by the knob above the oil feeder. It is recommended to adjust it to the number 2.
- 4、All the guide screw rods are greased every six days, and the surface must be cleaned before filling.

## 六、Common fault analysis and elimination

Fault phenomenon	cause of issue	resolvent
No response after startup	Power failure or phase loss	Restore power
Servo alarm	Check whether the material is jammed	Clear the alarm or re-power on according to the servo alarm code



Can't reset	1、 The origin switch is damaged and the welding station cannot be moved back. 2、 The device is in an alarm state.	1、 Check whether all cylinder switches are in place Replace the welding origin switch in time. 2、 Clear alarm
Wrinkled or flared steel strip	1 、 Incorrect position of crimping wheel 2 、 The groove of crimping wheel is worn, resulting in uneven contact surface	1、 Readjust the position of the crimping wheel 2 、 Replace the crimping wheel or use it in reverse.
Uneven crimping depth	1 、 The upper and lower cylinders of the crimping wheel are not in place, or the air pressure of the cylinder is too small 2 、 The chuck clamping cylinder cannot clamp the product steel belt	1、 Check the supply air pressure of the equipment and increase the air pressure of the upper and lower cylinders of the crimping wheel 2 、 Adjust the screw on the chuck clamping cylinder and adjust the air source regulator of the chuck clamping cylin

## 七、 Operation essentials

### 7.1operational readiness:

- 1.Connect the air source to make the pressure gauge indicate 0.5-0.7MPa.
- 2.Connect the 380V power supply, turn on the control box breaker switch, and turn on the emergency stop button on the lower panel to keep the machine energized.
- 3.When the cylinder servo motor is at the designated position, in the manual state, press any button on the manual screen on the screen to perform manual operation.
- 4Automatic working conditions of the machine: the equipment does not have any alarms, the full axis reset is completed, and the equipment is in the automatic state.

### 7.2Cylinder magnetic switch position determination



1. When the cylinders are in the original position and in position, the corresponding induction switches will light up respectively.

2. The position of the proximity switch is determined, please adjust as follows:

(1) The machine is placed in the manual state, and the screen is also placed in the manual screen.

(2) Press the cylinder button on the manual screen, and the corresponding cylinder will act to detect whether the sensor switch on the cylinder will be on. If it is not on, you can manually adjust it. If the manual adjustment is not on, the sensor switch may be broken or the line may be faulty.

Note: When any proximity switch is not inductive (not lit), the next action of the machine will not be carried out, and it will also cause damage to the equipment or product. At this time, special attention should be paid to maintenance or troubleshooting.

## **八、 Controller introduction**

### **8.1 Features of the control system**

· The control system of the machine adopts Delta PLC, Fanyi touch screen and Huichuan servo driver. It can adjust the crimping depth, reclaiming position, crimping position and crimping speed, which is more convenient to control.

### **8.2 Introduction to touch screen button switch**

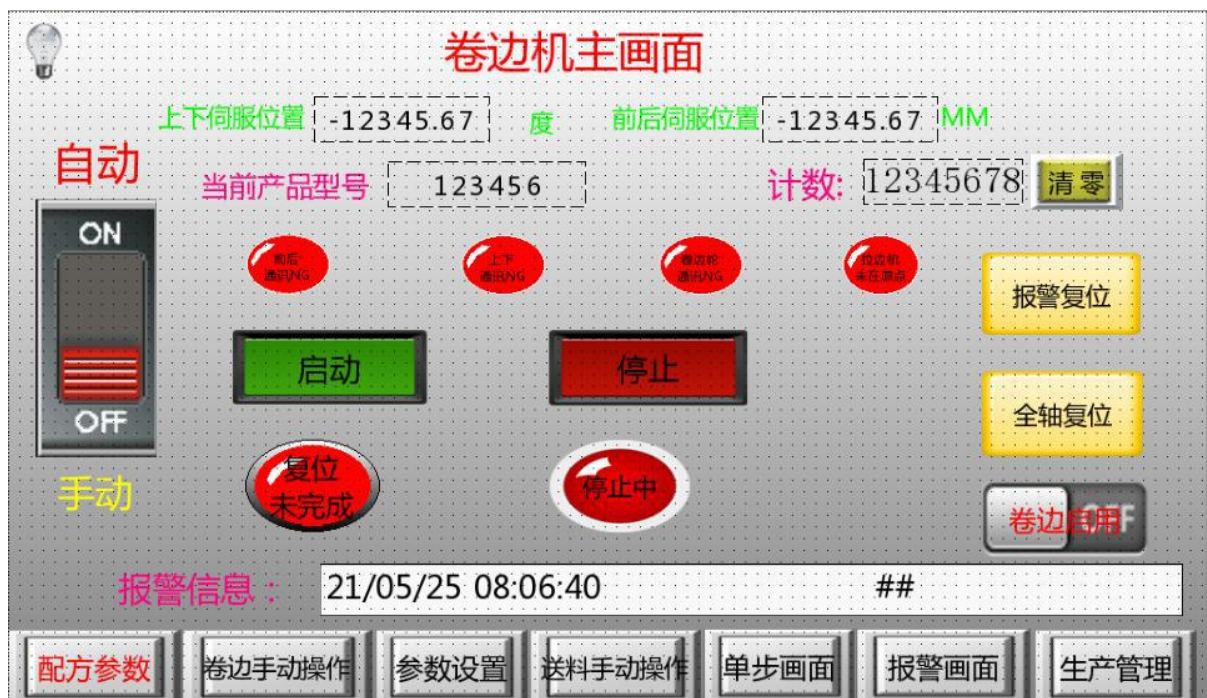
· On the premise of connecting the power supply, press the "emergency stop" button on the lower board of button 1, the work indicator on the panel is on and the touch screen is displayed.

Initial page·



After the machine is powered on, the initial state of the touch screen displays the startup screen, which displays the device name, company address, contact number, Chinese and English buttons in two languages, and the "Enter Operation" button.

## Main operation interface







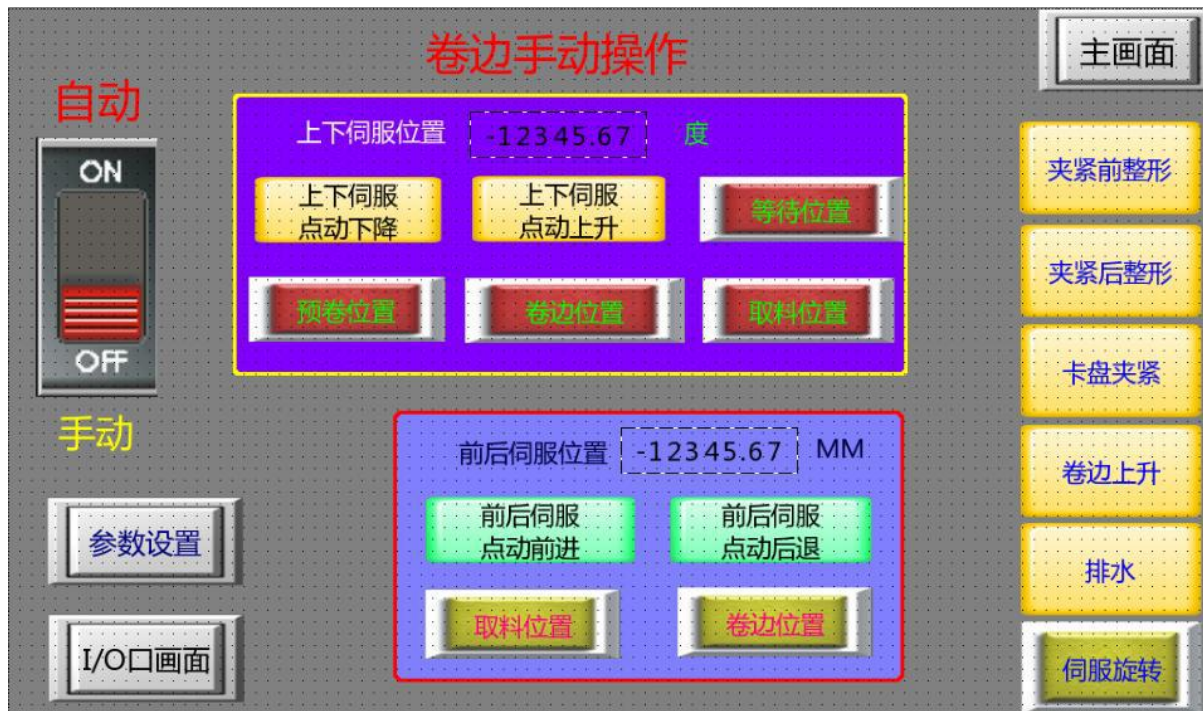
The host operates the touch screen to display the above screen. In the automatic state, the equipment does not have any alarms, and the equipment's full axis reset is completed, press the "start" button on the screen, and the machine can start normally. The corresponding sensor switch indicator light is also displayed on the screen, and the indicator light on the screen will be on. If it is not at the starting position, switch to manual, press the "reset" button, and the machine will automatically return to the starting position.

In the process of automatic operation, press the "Stop" button, the device will complete the current product, and run to the next round, the device will automatically stop. When the equipment fails, the corresponding alarm information will appear in the alarm information bar, which is very convenient for users to find out the corresponding fault in time. After the fault is handled, press the "Alarm Reset" button to clear the alarm information in the alarm information bar. If there is an alarm message such as a servo alarm, the device can handle the alarm message even if it is powered off and restarted.

In the main operation interface of the touch screen, press the "crimping manual operation" button, and the screen will jump to the manual screen. In the manual state, pressing any button on the manual screen will have corresponding action, such as "shaping before clamping" and "shaping after clamping", and the button indicator will be on during operation. Manual is only convenient for debugging, maintenance and use, and should be used less during normal production. Press the "upper and lower servo inching down" and "upper and lower servo inching up" buttons on the interface, the upper and lower servo will rise or fall, and the data of the upper and lower servo positions will change accordingly. Press the "front and rear servo inching forward" and "front and rear servo inching backward" buttons on the interface, the front and rear servo will move forward or backward, and the data of front and rear servo positions will change accordingly. Do not collide with other mechanical parts in the process of up and down servo and front and rear servo inching, so as to avoid damage to mechanical parts. Press the "waiting position", "pre winding position", "crimping position", "reclaiming position" and "crimping position" buttons on the interface, and the servo will run according to the parameters set in the parameter screen. Before these position buttons, ensure that the corresponding parameters in the parameter screen comply with the actual servo position to avoid collision and damage to mechanical parts.



## Manual page crimping



In the main operation interface of the touch screen, press the "Manual feeding operation" button, the screen jumps to the manual operation screen of the hemming wheel, in the welding station operation screen of the touch screen, in the manual state, press "Pull 1 before and after", "Pull" in the interface Corresponding buttons such as "Material 1 Up and Down" and "Pulling Material 2 Front and Back" will have the cylinder act accordingly and the button indicator will light up. Press the interface "curling wheel jog forward" and "curling wheel jog backward" button, the hemming wheel will move forward or backward, and the current position data of the hemming wheel servo on the screen will also change accordingly. During the servo jog process, do not collide with other mechanical parts of the product to avoid damage to the mechanical parts. Press the interface "curling wheel in place" button, the hemming wheel will run to the manual position of the hemming wheel at the manual speed of the hemming wheel. It is often used in the process of adjusting the size of the hemming.





## Manual operation page with curling wheel



Press the "Parameter Setting" button on the main screen, touch the screen to enter the parameter setting screen, as shown in the figure below.

## Parameters page





The parameter page is to set the servo speed and cylinder delay parameters during the automatic operation of the crimping machine. The product length is set by the diameter of the steel ring that the user needs to weld, and the welding width is based on the width of the steel strip itself. To set. Press and hold the blank space in the lower right corner of the parameter setting screen, the touch screen will enter the welding machine parameter setting screen. As shown in the figure below, this screen is to set the speed and position of the servo operation during the welding process. When the equipment is debugged and stable, the welding machine The parameters of the parameter screen basically need to be changed. When the edge-drawing machine equipment connected in the subsequent process of the equipment, the edge-drawing machine needs to be turned on to realize the function of the curling and edge-drawing machine, and it needs to be set to turn on the edge-drawing machine.

## Host parameter setting 2

主机参数设置2					
上下当前位置	-1234.56	度	前后取料位置	-1234.56	MM
上下待料位置	-1234.56	度	前后卷边位置	-1234.56	MM
上下取料位置	-1234.56	度	卷边轮最小直径	-1234.56	MM
上下提前夹紧位置	-1234.56	度	卷边轮最大直径	-1234.56	MM
上下卷边抬起深度	-1234.56	度			
上下卷边深度	-1234.56	度			
上下提升位置	-1234.56	度			

拉边机开启 OFF

卷边机原位等待 OFF

参数设置

主画面

When the crimping machine needs to use multiple types of crimping, it needs to use the formula function. The formula can store the parameters of multiple models and specifications. During use, it can avoid the model of the used product to set the parameters again. Only need to retrieve the formula, change the mold, and then use it, which greatly saves the debugging time. The formula name can be English letters





and numbers, so that there will be no error in the next time the formula is called. When you want to store the currently used parameters in the recipe, set the name of the current recipe, click on the recipe box to use the recipe group number, click the "recipe upload" button, you can use the used parameter storage In the formula, it is very convenient to use at a time and can be directly recalled. When changing to a new model product and storing the formula before, you only need to click the "Formula Download" button to use it directly without setting parameters and adjusting the position again.

## Data display page

组号	名称	数据[1]	数据[2]	数据[3]	数据[4]	数据[5]	数据[6]	数据[7]	数据
1	AAAA	-123456	-123456	-123456	-123456	-123456	-123456	-123456	-123

In the event of a failure, it is necessary to re-debug or change to a new model of product, you can run the single-step mode, which is very convenient to find the problem points in the process of use. Click the "Single-Step Screen" button on the main screen to enter the single-step screen. In the device reset complete, no alarm, automatic mode, open the single-step screen "Run Mode" button, click the "Next" button, A single-step start of the device can be realized.



## Single step screen



Click the "Production Management" button on the main screen to enter the output setting page, and you can see the product count and cumulative count. The set output means that the device can realize the automatic shutdown function when the product count reaches the set output value. When the output is set to 0, the shutdown function for output reaching is not enabled. Press the "Clear" button to clear the value of the product count, and also monitor the production beat, count per minute, current count, servo current position, and current status.





## Production management page

主画面

生产管理

日期:1234年12月12日  
星期:日 时间:12时12分12秒

生产节拍: 12.3 S  
累计计数: 12345678  
每分计数: 12 个/分  
当前计数: 12 个/分  
计数: 123456  
清零

名称	当前状态	当前位置
上下伺服		-123.45 mm
前后伺服		-123.45 mm
卷边轮伺服		-123.45 mm

全自动卷边机参数表

前后伺服参数		上下伺服参数		旋转伺服参数		卷边轮伺服参数	
H00-00=14101	电机编号	H00-00=14101	电机编号	H02-02=0	方向选择0-正转, 1反转	H00-00=14101	电机编号
H02-01=1	绝对值系统选择	H02-01=1	绝对值系统选择	H04-07=1	报警选择	H02-01=1	绝对值系统选择
H02-02=0	方向选择0-正转, 1反转	H02-02=0	方向选择0-正转, 1反转	H05-02=2000	1圈脉冲数	H02-02=1	方向选择0-正转, 1反转
H04-07=1	报警选择	H04-07=1	报警选择	H09-00=1	自调整模式选择	H04-07=1	报警选择
H05-02=3200	1圈脉冲数	H05-02=2000	1圈脉冲数	H09-01=15	刚性等级选择	H05-02=4000	1圈脉冲数
H09-00=1	自调整模式选择	H09-00=1	自调整模式选择	H03-11=1	伺服上电使能	H09-00=1	自调整模式选择
H09-01=15	刚性等级选择	H09-01=15	刚性等级选择	RUN	使能状态	H09-01=15	刚性等级选择
H0C-00=1	伺服轴地址	H0C-00=2	伺服轴地址	RDY	准备状态	H0C-00=3	伺服轴地址
H0C-02=2	串口波特率设置	H0C-02=2	串口波特率设置			H0C-02=2	串口波特率设置
H0C-03=0	MODBUS数据格式	H0C-03=0	MODBUS数据格式			H0C-03=0	MODBUS数据格式
H03-11=1	伺服上电使能	H03-11=1	伺服上电使能			H03-11=1	伺服上电使能
RUN	使能状态	RUN	使能状态			RUN	使能状态
RDY	准备状态	RDY	准备状态			RDY	准备状态
传动轮伺服参数							
H02-00=0	控制模式选择0-速度模式						
H02-02=1	方向选择0-正转, 1反转						
H04-07=1	报警选择						
H03-12=4	DI6端子选择						
H03-14=6	DI7端子选择						
H06-00=0	H06-01=5						
H06-02=3	H06-03=0						
H06-05=100	H06-06=100						
H09-00=1	自调整模式选择						
H09-01=15	刚性等级选择						
H12-00=2	H12-01=16						
H12-23=800							
H03-11=0	伺服上电使能						

> <

拉边机 卷边机 激光焊机 压角机 80焊机 全自动小圈 新款拉边机 激光焊机使用 四工位液压 ... + || ◀ ▶