# McUčć 卓越版真空注蜡机 **Prominent Vacuum Wax Injector**





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# 声明

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# STATEMENT

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• This manual is subject to alterations without prior notice. If you find any mistake or omission in this manual, please inform the supplier you bought the machine from. We will be very grateful for this.

# 一、设备参数介绍 Equipment parameter introduction

# 1.注蜡机技术参数 Technical parameters of wax injector

- ●电源:AC220V±10% 50/60Hz
- ❷功率:500W
- ❸保险丝规格:5A/250V
- ❹蜡缸温度:55-85°C(±1°C)
- ❺蜡嘴温度:55-85℃(±1℃)
- •Voltage:single phase, 50/60Hz
- Power:500W
- SFuse specifications:5A/250V
- ④Heating temperature range of wax bath: 55-85°C(±1°C)
- **⑤**Wax nozzle heating temperature range 55-85°C(±1°C)

- ❻真空时间:0-12S(±0.1s)
- ⑦注蜡时间:0-12S(±0.1s)
- ❸ 蜡缸容量:3Kg
- ⑨ 外型尺寸:L438×W312×D506(mm)
- **◎**重量:19kg
- **6** Vacuum timing range:0 − 12 S (±0.1s)
- ♥ Wax injection timing range: 0 12 S(± 0.1s)
- 8 Wax tank capacity: 3kg
- Dimensions:L438×W312×D506(mm)
- **O** Weight:19kg

# 2.控制箱技术参数 Control box technical parameters

- ●外部气压:0.4-0.7MPa
- ❷调压阀设定气压:0.4MPa
- 3注蜡压力1:<200KPa
- ❹注蜡压力2:<200KPa
- ●再次启动时间:建议<0.5S,不需要二次加压,设置为0</p>
- •External air pressure:0.4-0.7MPa Setting air pressure of pressure
- ❷regulating valve :0.4MPa
- ③Press 1:< 200KPa</pre>
- ④Press 2:< 200KPa</pre>
- Timing for P.2 : It is recommended to < 0.5 S, no need to pressurize twice, set to 0

- ❻压模压力: < 256KPa
- 推模压力: < 256KPa</p>
- 8 压模延时: <256S
- ❷ 最大工件数:999999
- ●存储参数组:一键模式10组+非一键 模式1组
- G Air pressure of fixture compression mould: < 256KPa</p>
- Pressure of fixture pushing mold: < 256KPa</p>
- 8 Hold time: < 256S</p>
- Maximum number of work pieces: 999999
- Storage parameter group:10 groups of one - key mode + 1 group of nonone-key mode

# 3.机械手技术参数 Manipulator technical parameters

标准夹具胶模尺寸:L135 × W105 × D45(mm) 加宽型夹具胶模尺寸:L135 × W135 × D60(mm)

Standard clamp film size:L135 × W105 × D45(mm) Widened large clamp film size:L135 × W135 × D60(mm)

#### 4.真空泵技术参数 Technical parameters of vacuum pump

- ●电源:AC220V±10% 50/60Hz
- ●功率:120W
- ●最大真空压力:-100KPa
- ●抽气速率: 1.2L/S
- ●加油量:160mL

- power supply: AC 220V ± 10% 50 / 60 Hz
- power: 120W
- Maximum vacuum pressure:-100KPa
- Pumping rate: 1.2L/S
- The amount of oil:160mL

# 二、安装指导 Installation guide

#### 1.使用条件 Conditions of Use

- ●电压 AC220V ±10%
- ●使用开关必须为带漏电保护的空气开关,电源供电必须接地
- ●压缩空气必须进行干燥、除尘、除油处理并且稳定
- ●设备周围不能放置易燃易爆物品
- ●不能在有粉尘有害气体环境下使用此机器
- Voltage AC220V ±10%
- The switch used must be an air switch with leakage protection, and the power supply must be grounded
- The compressed air must be dried, dust-removed, oil-removed and stable
- No flammable and explosive materials should be placed around the equipment
- This machine cannot be used in an environment with dust and harmful gases

# 2.注蜡机箱与机械手连接 Connect the wax injector case to the clamp



#### 拆卸运输专用"固定块"示意图 Schematic diagram of disassembling and transporting "fixed block"

●卸下"固定块"的3颗螺丝,将"固定块"保存好。(如需要打包运输时,将"固定板"固定回 原位,防止机械手在运输过程中因摆动造成的二次损坏);

❷将注蜡机箱和控制箱放着在同一水平的工作台面上;

❸将注蜡机箱上的两个"胶头螺丝"旋转松动,旋转出一定的距离;

④将"机械手"挂靠在注蜡机箱的两个"胶头螺丝"上,将"胶头螺丝"拧紧;

⑤转动机械手底部的"调节螺丝",使"机械手"水平放置;

⑥将"接蜡杯"放置于"机械手"相应的卡位上,完成安装。



#### 注蜡机箱与机械手连接示意图 Schematic diagram of connection between wax injector case and clamp

Remove the 3 screws of the "fixed block" and save the "fixed block". (If you need to pack and transport, fix the "fixed plate "back to the original position to prevent secondary damage caused by the swing of the manipulator during transportation);

Place the "wax injection box" and "control box" on the same level work surface;

SLoosen the two "plastic head screws" on the wax injection case to a certain distance;

Hook the "manipulator" on the two " plastic head screws" of the wax injection case, and then tighten the "plastic head screws";

• Turn the "adjustment screw" at the bottom of the manipulator to place the "manipulator" horizontally;

• Place the "wax receiving cup" on the corresponding card position of the "manipulator" to complete the installation.

## 3.气管、信号线、电源线的连接 Connection of tube, signal wire and power wire



## 三、真空注蜡机IW-VWI操作面板介绍 Introduction of IW-VWI Operation Panel of Vacuum Wax Injection Machine

## 1.面板指示灯说明 Panel indicator description



指示灯indicator	灯亮Light on	灯灭Light off
蜡缸加热 Wax pot heating	正在对蜡缸加热,蜡缸温度未达到设置温度。 The wax pot is heating, and the temperature of the wax pot has not reached the set temperature.	蜡缸温度已达设置温度。 The wax pot temperature has reached the set temperature.
蜡嘴加热 Nozzle heating	正在对蜡嘴加热, 蜡嘴温度未达到设置温度。 The wax nozzle is heating, and the temperature of the wax nozzle has not reached the set temperature.	蜡嘴温度到达设置温度。 The wax nozzle temperature reaches the set temperature.
设备执行 Implement	可启动操作。 Operation can be started.	设备正在工作,不可以进行其他操作。 The device is working and other operations are not allowed.
真空 Vacuum	正在对胶模进行抽真空。 The rubber mold is being vacuumed.	没有启动抽真空。 No vacuum is started.
注蜡 Injection	正在对胶模进行注蜡。 Wax is being injected into the rubber mold.	没有启动注蜡。 Wax injection is not started.

# 2.拨动开关说明 Toggle switch description

- 真空选择开关
   真空开(上):启动真空功能
   真空关(下):不启动真空功能
- 注蜡选择开关

注蜡开(上):自动启动注蜡 注蜡关(下):不启动注蜡,需要紧急关闭注 蜡动作时,拨下此开关

• Vacuum selector switch

Vacuum on: Start the vacuum function during wax injection Vacuum off: Vacuum function is not activated during wax injection

• Wax injection selector switch

Auto:Wax injection is automatically started during wax injection Stop / manual : When the wax injection function is not activated and the wax injection action needs to be turned off urgently, turn down this switch

# 3.刻度旋钮说明 Description of scale knob

- 蜡缸温度旋钮:温度调节范围55-85℃ ●真空时间旋钮:真空时间调节范围0-12秒
- 蜡嘴温度旋钮:温度调节范围55-85℃ ●注蜡时间旋钮:注蜡时间调节范围0-12秒
- Wax bath temperature knob: The temperature adjustment range is 55-85°C
- Wax nozzle temperature knob: The temperature adjustment range is 55-85°C
- Vacuum time knob: The vacuum time adjustment range is 0-12 seconds
- Wax injection time knob: Wax injection time adjustment range 0-12 seconds

#### 4.面板按键说明 Panel button description

●上:控制机械手上升

• Up: Control the manipulator to rise

•下:控制机械手下降

- Down: Control the manipulator to descend
- •自动:按键"抬起"状态为手动,"按下"状态为自动感应

Automatic: the button "lifted" state is manual, "pressed" state is automatic induction

# 四、主机控制盒IW-DCB介绍Introduction of host control box IW-DCB



- ⑤ 一次注射压力:PRESS1
- ⑥ 二次注射压力:PRESS2
- ⑦ 再次启动时间:TIMING FOR P.2

❶ 启动按键:START

- ❶ 设置按键:SET
- B 保存按键:ENTER

- ❸ 压模压力:CLAMP PRESSURE
- 压模延时:HOLD TIME
- 进模压力:FORWARD PRESSURE
- ❷ 排气/工件按键:EXHAUST/WORK-PIECE
- ⑤上下按键:Up and down buttons
- 10-9数字按键:0-9 numeric keys

# 1.操作面板介绍 Operation panel introduction

1.1. 窗口显示介绍

●两组四位数值显示窗口:第1个功能按键的数值显示在左侧窗口,第2个功能按键的数值显示在右侧窗口;

❷6个单数值显示窗口:一键代码模式显示代码值,非一键模式显示123456,当再次启动时候和压模延时的设置值>0时,该窗口会有代码值显示,便于提示已经开启此功能。
 ⑧6个功能指示灯:功能显示;

④1个设置指示灯:灯亮代表进入设置状态。

#### 1.1. Window display introduction

• Two groups of four - digit value display windows : the front function button corresponds to the parameter display window on the left, and the rear function button corresponds to the parameter display window on the right;

● 6 single - value display windows: One - key code mode displays the code value, non - one - key mode displays 123456, when restarting and the compression mold delay setting value >0, the window will display the code value, which is convenient to indicate that it has been opened this function;

● 6 function indicator lights: the light on represents the state of the display window;

**4** 1 setting indicator light: the light on represents the setting status.

#### 1.2. 按键功能介绍

●6组功能选择按键:一次注射压力、二次注射压力、再次启动时间、压模压力、压模延时, 进模压力;

● 启动按键:启动注蜡;

②设置按键:灯亮进入设置模式,再按灯灭退出设置模式;

③保存按键:修改参数,数值闪动,按下保存按键,数值停止调动,参数已保存;

 • 排气/工件按键: 排气功能(按下设置灯亮后按排气);工件查看功能(长按时显示工件
 数量);

●上下按键:翻页/上下功能;

① 0-9数字按键:在设置功能可以进行参数输入,在非设置时可一键代码选择代码号(注 蜡程序过程,按键无效)。

#### 1.2. Introduction to key functions

● 6 groups of function selection buttons: PRESS 1, PRESS 2, TIMING FOR P.2, CLAMP, HOLD TIME, FORWARD PRESSURE;

START : Start wax injection program;

• SET: the light is on to enter the setting mode, and then the light is off to exit the setting mode;

ENTER: modify the parameter, the value flashes, press the ENTER button, the value stops transferring, the parameter has been saved;

EXHAUST/WORK-PIECE: Exhaust function (press to set the light and then press to exhaust); Work piece viewing function (long press to display the number of work pieces);

Up and down buttons: page turning/up and down functions;

**(0** - 9 numeric keys : parameter input can be performed in the setting function, and the code number can be selected by one key code when it is not set (the wax injection program process, the key is invalid).

#### 2.系统参数设置与软件版本查看

#### System parameter setting and software version view

2.1. 运行模式选择:一键代码/非一键代码:

● 一键代码:按"设置"按键,设置灯亮,系统进入设置模式,通过上下按键选择P1项,输入数值"1"并按保存按键。

● 非一键代码:按设置按键,设置灯亮,系统进入设置模式,通过上下按键选择P1项,输入参数"0"并按保存按键。

[一键代码说明:有十组一键代码参数,通过数字按键0-9快速选择调用(用户可自由修改,有保存功能)。非一键代码说明:一组参数(用户可自由修改,有保存功能)键值参数显示 1-6]

2.1. Operation mode selection: One-key code / non-one-key code:

• One - key code: Press the "Settings" button, the setting light is on, and the system enters the setting mode. Use the up and down buttons to select P1, enter the value "1" and press the save button.

• Non - one - key code: Press the setting button, the setting light is on, and the system enters the setting mode. Use the up and down buttons to select item P1, enter the parameter "0" and press the save button.

[One - key code description: There are ten groups of one-key code parameters, which can be quickly selected and called by the number buttons 0-9 (the user can freely modify, and there is a save function).Description of non-one-key code: a set of parameters (users can freely modify, with save function) key value parameter display 1-6].

2.2. 软件版本查看:

● 按设置按键,设置灯亮,系统进入设置模式,通过上下按键选择P0项,右侧"数值显示 窗口"显示程序版本。

2.2. Viewing the software version:

• press the setting button, the setting light is on, the system enters the setting mode, and the P0 item is selected by the up and down buttons, and the program version is displayed on the "value display window" on the right.

#### 2.3. 工件数量查看:

● 长按"排气/工件"按键显示工件数量。

2.3. View the number of work pieces:

• long press the "exhaust/work piece" button to display the number of work pieces.

# 五、操作说明 Instructions

# 1.总气压调节 Total air pressure adjustment

调压阀位于控制箱右侧,拔起后再调节建议值400Kpa。

The pressure regulating valve is located on the right side of the control box. After pulling it up, adjust the recommended value 400Kpa.

## 2.加蜡步骤 Steps to add wax to the wax pot

●按下排蜡按键,设备自动停止对真空室 抽真空(蜡缸与真空室互通);
②选择功能"第一次注射压力",进入设置 模式,再按"排气"按键,出现"OUT---"字 样,等待压力值为0;

- ❸打开上盖,添加蜡;
- ❹盖好上盖;
- ⑤按"设置"按键,按键灯灭,退出排气模式;
- ●取消排蜡按键对蜡缸抽真空。

Press the Exhaust button, and the equipment will automatically stop vacuum (the wax chamber and the vacuum chamber is connecting each other);
Select the function "Press 1" to enter the setting mode, and then press the "Exhaust" button and appear"OUT---", and wait for the pressure to be 0;
Open the cover and add wax;

④Close the cover;

• Press the "SET" button, the button light is off, and exit the exhaust mode;

**6** Exit the Exhaust button to vacuum the wax chamber.

## 3.排蜡步骤 Wax discharge steps

每天注蜡工作结束需要进行排蜡。

●设置好熔炼室压力为50KPa,打开排蜡开关,此时真空室压力等于蜡缸压力。 ❷将接蜡盒放置排蜡口下方(注意眼睛请勿水平直视排蜡口,以免蜡排放伤害)缓慢打开 侧面的排蜡阀门,将真空室的蜡向外排。

Wax removal is required at the end of daily wax injection work.

• Set the pressure of the melting chamber to 50KPa and turn on the wax discharge switch. At this time, the pressure of the vacuum chamber is equal to the pressure of the wax tank.

Place the wax box under the wax discharge port (be careful not to look directly at the wax discharge port horizontally to avoid wax discharge damage) slowly open the wax discharge valve on the side to drain the wax in the vacuum chamber.

## 4.工件清零 Zero the work piece

长按"排气/工件"按键显示工件数量,按键不释放,此时输入"0",系统将工件清零。

Long press the "Exhaust/Work piece" button to display the number of work pieces. If the button is not released, input "0" at this time, and the system will reset the work piece.

#### 5.参数设置 Parameter setting

气压单位KPa,时间单位秒,输入最大数255 Air pressure unit KPa, time unit second, enter the maximum number 255

一次注射压力	Press 1
二次注射压力	Press2
再次启动时间	Timing for P.2
压模压力	Clamp Pressure
压模延时进模压力	Hold time

举例说明:设置一键代码值0的一次注射压力70KPa、二次注射压力80KPa、再次启动时间 0.55、压模压力90KPa、压模延时55,进模压力100KPa。

For example: set the one-key code value 0 for the first injection pressure of 70KPa, the second injection pressure of 80 Kpa, the restart time of 0.5S, the compression mold pressure of 90KPa, the compression mold delay 5S, and the injection pressure of 100KPa.

●择一键代码"0";

❷进入设置模式:按下"设置"按键,灯亮进入设置模式;

●选择功能按键:按下"一次注射压力",此时右侧数值显卡值调动,输入"70"并按确定按键,数值不闪烁代表数值保存完成;

●选择功能按键:按下"二次注射压力",此时右侧数值显卡值调动,输入"80"并按确定按键,数值不闪烁代表数值保存完成;

●选择功能按键:按下"再次启动时间",此时右侧数值显卡值调动,输入"5"并按确定按键,数值不闪烁代表数值保存完成;

❺依次类推完成所有操作,再次按"设置"按键,灯灭,退出设置模式。

Choose a key code "0";

❷Enter the setting mode: press the "SET" button, the light is on to enter the setting mode;

Select the function button: Press "PRESS 1", and the value of the numerical display on the right side will be adjusted at this time. Enter "70" and press the OK button. The value does not flash, indicating that the value is saved;

•Select the function button: Press "PRESS 2", and the value of the numerical display on the right side will be adjusted at this time. Enter "80" and press the OK button. The value does not flash, indicating that the value is saved;

Select the function button: Press "Timing for P.2", the value of the right-side numerical display card will be adjusted at this time, enter "5" and press the OK button, the value does not flash, indicating that the value is saved;

• Complete all operations by analogy, press the "SET" button again, the light is off, and exit the setting mode.

# 6.自动/手动模式选择 Automatic/manual mode selection

• 自动模式选择:将主机(IW-VWI)红色自动开关至按下状态

先将胶模放在亚克力工装上,推进机械手,亚克力工装到位磁铁触发设备启动;

• 手动模式:将主机(IW-VWI)红色自动开关至抬起状态

先将胶模放在亚克力工装上,推进机械手,再按控制面板的启动按键触发设备启动。

• Automatic mode selection: turn the red automatic switch of the host (IW-VWI) to the pressed state

Put the film on the acrylic tooling first, push the manipulator, the acrylic tooling is in place and the magnet triggers the device to start;

• Manual mode: turn the red automatic switch of the host (IW-VWI) to the raised state

Put the film on the acrylic tooling first, push the manipulator, and then press the start button on the control panel to trigger the device to start.

# 7.夹具上下调节 Fixture up and down adjustment

自动版本: 主机箱"上"按键:控制机械手上升; 主机箱"下"按键:控制机械手下降; 手动版本: 手动调节旋钮进行调节

Auto: Main box "up" button: Control the manipulator to rise "Down" button of the main box: Control the manipulator to descend; Manual: manual adjustment knob for adjustment

# 8.压模位置调节 Pressing Die position adjustment

压模气缸逆时针拧松,移动位置,顺时针拧紧即可。

Unscrew the die cylinder counterclockwise, move the position, and tighten it clockwise.

# 六、设备报错代码说明 Device error code description

当设备出现错误时,若显示提示"E111"字样。其代表意思如下:

●第一个"1"代表蜡缸加压漏气,检查接管,或者上盖是否锁紧。

❷第二个"1"代表夹具压动漏气,检查气管是否漏气。

❸第三个"1"代表夹具推动漏气,检查气管是否漏气。

When the device has an error, if it displays the prompt "E 1 1 1". Its representative meaning is as follows:

• The first "1" means that the wax bath is pressurized and leaks. Check whether the connecting pipe or the upper cover is locked.

The second "1" means that the clamp is compressed and leaked. Check whether the air pipe is leaking.

Solution The third "1" represents air leakage when the fixture is pushed. Check whether the air pipe is leaking.

# 七、包装清单 Packing list

打开包装时,请检查一下配件是否齐全。

When opening the package, please check whether the accessories are complete.

配件清单 Parts list					
序号 No.	配件名称 Parts name	数量 Quantity	单 位 Unit		
1	注蜡机Vacuum wax injector	1	台SET		
2	控制盒controlbox	1	台SET		
3	机械手Clamp	1	台SET		
4	真空泵Vacuum pump	1	台SET		
5	配件盒Accessory box	1	盒BOX		
6	托模板套装Acrylic plate	1	盒BOX		
7	说明书Manual	1	本PC		

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