



# Intelligent interconnected kitchen

Modern and new catering mode

September 1, 2019



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# Market analysis

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◆ Market space

◆ Analysis report

◆ Summary



## Wide market space and good prospects

For example, there are 500 or 1200 people in an office building or in a banking institution, and there are 25 buildings in Shenzhen Bay Science Park, multiplied by Shenzhen City, then multiplied by the whole province, and then multiplied by the whole country. It is estimated that 30 million people in the country eat fast food outside every day.

Taking 25 yuan per meal as an example, the profit accounts for one third. We can calculate a profit that is close to the exact amount. A building can earn 10W yuan per meal. The national daily revenue is 250 million yuan (excluding distribution revenue+advertising revenue+Internet dating platform revenue).



# Data analysis

	Picture	Price	Food and beverage safety	Covering cities	Number of merchats	Back ground	Physical production method	Environmental protection	Cost	Raw material	Afford ability	Efficiency	Co m ment	Compre hensive score	Compre hensive score (Full score of 5 points)
Meituan takeout		Slightly high	Standard customization and restandardization	2800 counties and cities	6 million 200 thousand	Tencent, the largest shareholder	Presence of seasoning bag and quick-frozen food	Disposable chopsticks, packaging box, packaging bag	20% commission per order	Not guaranteed	Save money	Fast delivery	868	Five-star 22%+four-star 7%+three-star 6%+two-star 10%  + One-star 55%	2.2
Hungry		High	Heavy special plan	676 counties and cities	3 million 500 thousand	Alibaba	Presence of seasoning bag and quick-frozen food	Disposable chopsticks, packaging box, packaging bag	Extract from each order  16%-20%	Not guaranteed	Commonly	Sometimes it's very slow	1453	Five-star 15%+four-star 3%+three-star 5%+two-star 7%  + One-star 70%	1.7
Offline physical store		High	Industry standards	Global coverage	Thousands of businesses	individual	On-site production	Reusable	other	Guaranteed	High	Need to queue			
Large kitchen equipment		High cost		Industry standards			Basically cooked food is reheated				Commonly	Fast			

## Positive comments

- ① It is relatively affordable.
- ② The refund is fast, and the compensation of Jijibao is more than that of another takeout platform.
- ③ The after-sales treatment of customer service was OK
- ④ The rider is fast and the discount is good, but the fruit is too expensive
- ⑤ Businessmen are careful and riders are punctual.
- ⑥ You can get a coupon every day.
- ⑦ The APP is good, simple and easy to use, without fancy function entry. It is still very affordable to open the membership, and it will be paid back after two shopping.
- ⑧ It's much cheaper and faster to buy things here than on the market.
- ⑨ You can eat delicious food without going out.

## Negative comment

## Take-out food

1

### There are huge hidden dangers in food safety

Many Sanwu products flow into consumers

2

### There are often overtime or food and beverage hygiene problems

From the completion of production to consumer use, there are hygiene problems.

3

### Food raw materials are not fresh enough

To control costs by all means.

4

### Serious environmental pollution

The takeaway box is difficult to decompose when it is deep into the soil, and the pollution is becoming more serious

5

### High cost

Take Meituan as an example, 20% of the commission will be paid for each order





# Common problems

## 1、Heath

The food safety problem is difficult to guarantee and seriously endangers the physical and mental health of consumers.

## 2、Environment protection

The large use of disposable chopsticks and disposable lunch boxes does not conform to the concept of green environmental protection.

## 3、Price

There is a widespread problem of high prices. Not very affordable.

## 4、Mode

Waiting time is too long to enjoy delicious food on time.



# 2

## Product selling point analysis

◆ Mind map

◆ Product style

◆ Product definition

◆ Usage

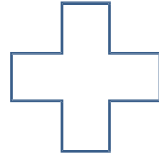
# Mind map



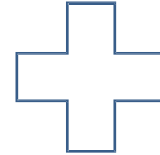


# Product definition

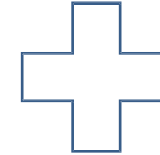
**Clean**



**Low price**



**Simple operation**



**Interactive fun**

The integrated intelligent operation of online and offline full set of program services and terminal cooking and selling can truly achieve no kitchen and no cook, and effectively reduce labor costs.

Non-reheating, zero emission, no oil smoke, no open fire, refrigeration, fresh preservation, automatic cleaning, fresh cooking, environmental protection and hygiene.

Online reservation and order placement, standardized operation, unified provision of sauce packages, and simple processing of food materials

Making friends through the platform internet is simple, convenient, safe and reliable



智能售餐机最新20  
1911114.xlsx

◆ **Parts cost**  
Internal movement and shell

◆ **Installation cost**  
Assembly method

◆ **Other costs**  
Packaging, transportation, maintenance, etc

# Product selling points

- ◆ First, products are purchased by installment to reduce the economic pressure of users.
- ◆ Second, in terms of food materials, cold-chain distribution - has its own warehouse, specializing in purchasing, storing, cutting and packaging raw materials; Cold chain truck distribution, constant temperature refrigeration and sealed refrigerated room will not be polluted in the whole process.
- ◆ Third, scan the code to order meals, place orders in advance, and there will be no congestion. Fourth, screen advertising and Internet dating.
- ◆ Fourth, it covers a small area and can be placed in the tea room or corner.

# Core competitiveness

- 1、 The equipment is powered by 220V AC mains power, and the whole machine is controlled at full load (18 kW). Single operation capacity (9 kW)
- 2、 The main board of the controller has the function of detecting the grid voltage, working power of the whole machine, and reporting the fault code in case of abnormality.
- 3、 The pressure relief link after cooking is to open the pressure relief solenoid valve. The sewage collection bucket collects the sewage after steam separation. The weighing module under the sewage bucket detects the status of the sewage bucket and reports the water volume in real time

Information. If the sewage pipe is connected, there is no sewage collection process..

- 4、 During the operation of the whole machine, if the control main board detects abnormal sensor data, immediately stop the operation of each functional module. If the steam generator module has worked, open the pressure relief solenoid valve to relieve pressure

Report the fault code.

- 5、 If the equipment is disconnected in standby state (unable to communicate effectively with the platform), the platform will send an alarm message and the equipment will enter the fault state to prompt that the equipment is disconnected except for the normal switch

inoperation. If there is a disconnection during cooking, the controller completes the cooking operation or pauses the cooking process (select one of the two modes) through the instructions issued by the platform+the preset cooking procedure flow, but the disconnection alarm is also triggered. The device can terminate the cooking process through administrator login.

- 6、 Safety: the whole machine is equipped with emergency stop button, hardware active pressure relief valve, pressure relief solenoid valve, leakage protector, pressure sensor, temperature sensor, solenoid valve sensor and other detection facilities.

- 7、 Once the distribution center confirms that the food distribution is completed and enters the fresh-keeping process, the cabinet door is locked (if it needs to be opened, it needs to be verified), and once it enters the heating process, the equipment cabinet door is locked (if it needs to be opened, it needs to be stopped

The machine works until the pressure relief is completed, and the specific calibration method is to be determined).

- 8、 Internally installed active pressure relief valve can actively relieve pressure when the internal pressure is greater than the safety value of the pressure valve. There are two built-in pressure sensors, and the pressure sensor data is read and monitored by the control board in real time. Greater than setting

When the safety value is reached, the alarm information will be sent to the platform, and the pressure relief solenoid valve will be triggered to release the pressure and upload the equipment fault information after the cooking process.



# Design scheme

Develop and design the appearance, structure, software and hardware of the product

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◆ Principle design

◆ Structural design

◆ Model selection

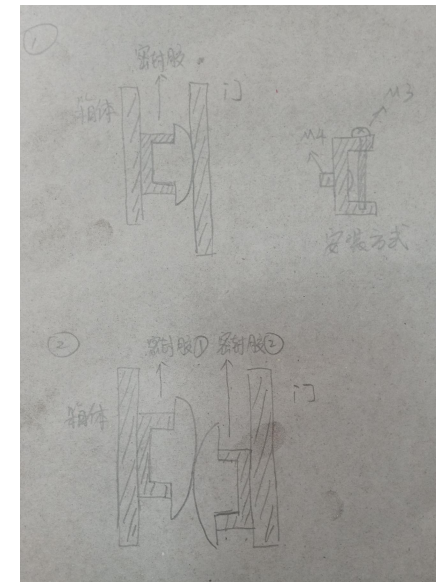
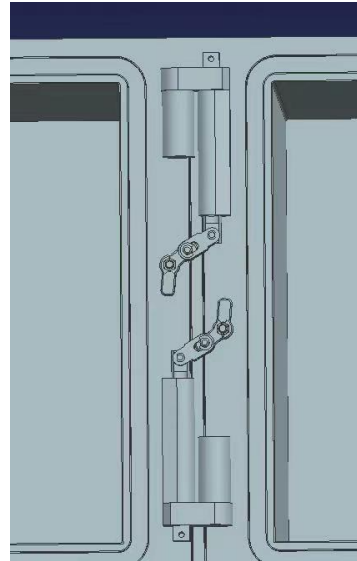
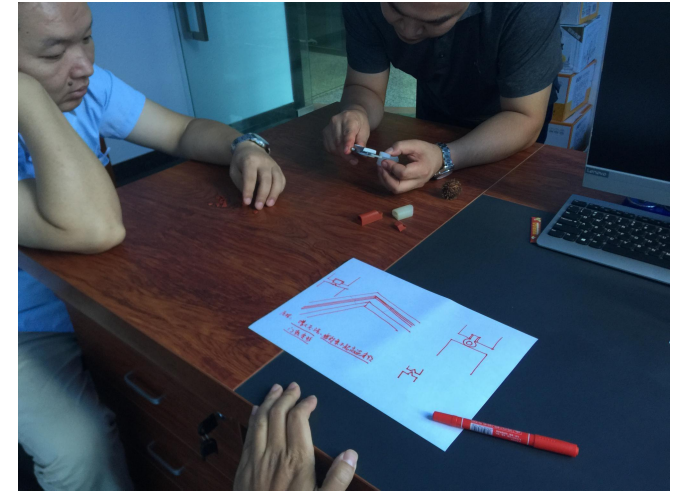
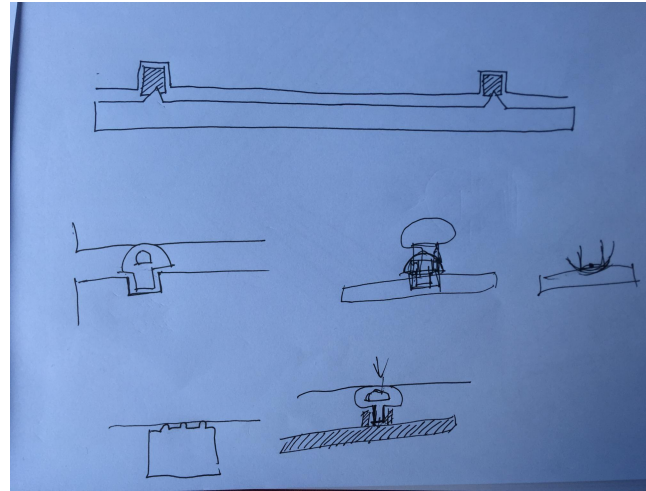
◆ Appearance design



# Principle discussion

## ◆ Structural principle design

The engineer will carry out feasibility design based on the basic principle of product realization.



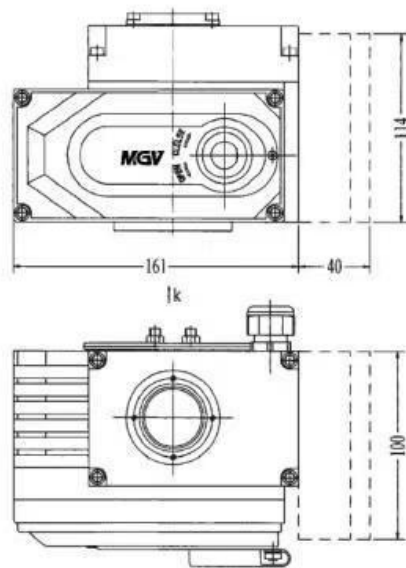
# Model selection

T型



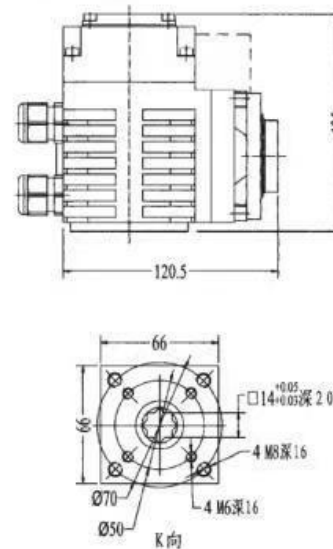
## 5. 外观图

5.1 005~008外观及安装尺寸 (虚线部分为模拟量控制盒, 开关型无此尺寸)



## 5. Outside View

5.1 005~008 Appearance and installation dimension [The part of broken line is used for analog quantity control box, On-off model don't have this size.]



工程费:	400.0
板费:	491.4
铜厚费:	300.0
确认生产稿费:	3.0
四线低阻测试费:	137.4
税费:	151.3
TG板材费:	34.0
最小孔径/外径费:	146.8

总价: ¥1664

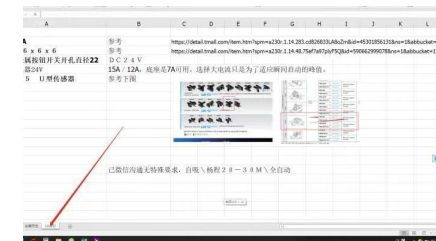
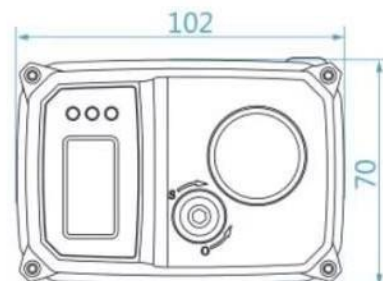
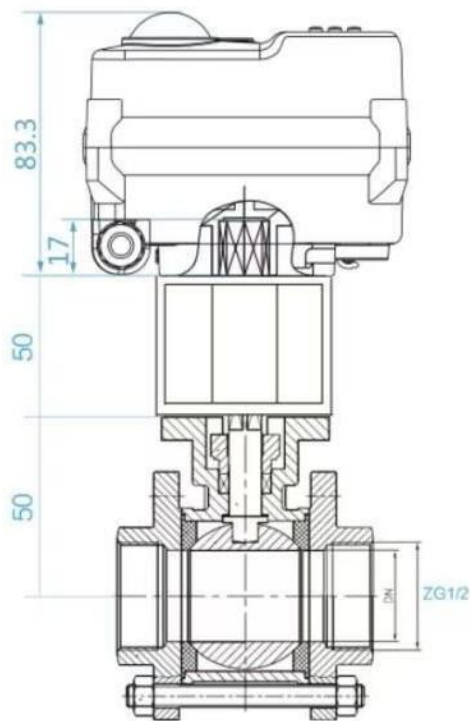


图 1

# Model selection



XH2.54-3P, 立式直插	DIP-2P	10
XH2.54-6P, 立式直插	DIP-6P	2
XH2.54-4P, 立式直插	DIP-4P	3
KF128-3.81-2P, 直针式	DIP-2P	8

电动球阀阀门控制系统技术参数需求：

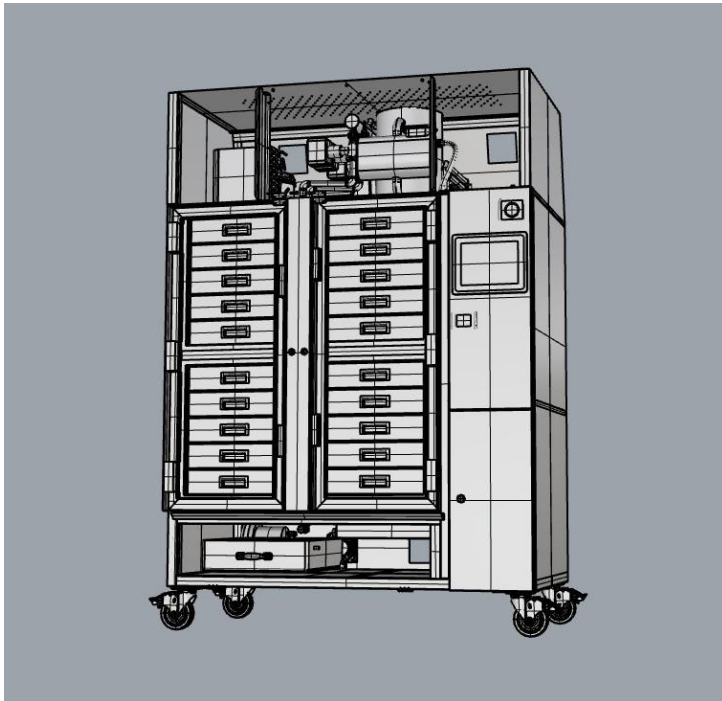
1. 阀门工作电压DC 12V 或 24V
2. 阀门规格DN15 DN20
3. 耐高温180度或以上
4. 阀门材质304不锈钢
5. 控制方式共2种规格（类型1.自复位型常开，通电关闭，具备到位指示输出。类型2. 3线控制型或正反转控制型，需带到位指示输出），两种规格都需要能长时间通电
6. 连接线缆长度5米，需考虑耐热必须大于或等于阀门耐高温参数。
7. 阀门需具备防溅水性能

以上阀门控制系统可适用类型：直通阀 三通阀。

# Structural design

## ◆ Detailed structural design

Engineers deepen the design according to the basic principles of product realization



# Appearance design

## ◆ Creative hand-painted

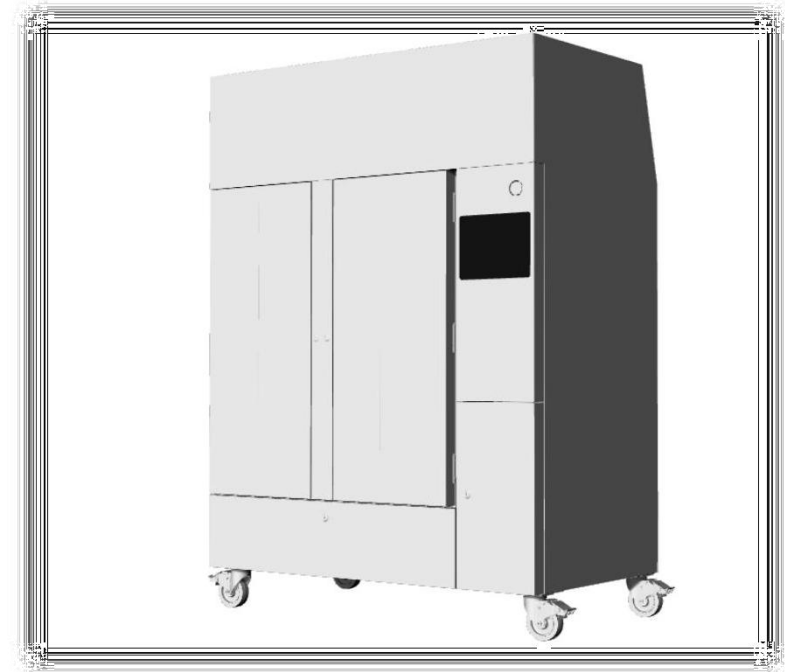
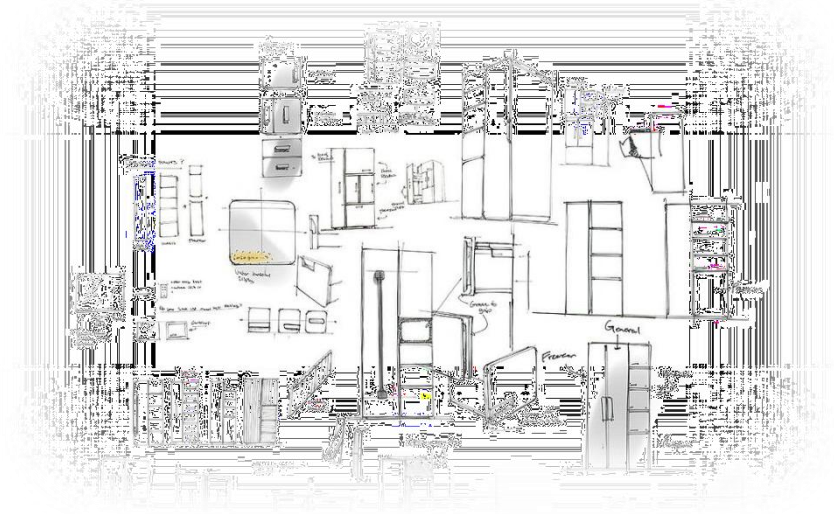
The designer brainstormed and reflected the preliminary ideas in the sketch.

## ◆ Build 3D model

The designer uses 3D software to transform the imaginary product shape from a two-dimensional plane diagram to a three-dimensional one.

## ◆ Rendering effect

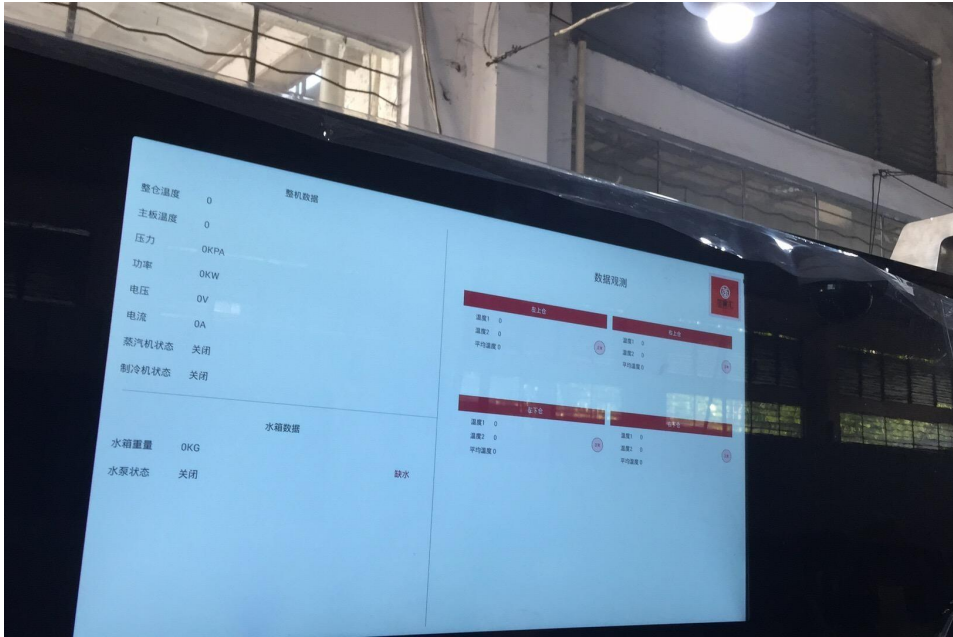
The designer gives the model material, color and light, and outputs the final effect picture with the scene.



# Software and hardware development

## ◆ Software development

Control product functions through applets or APP.



## ◆ Hardware development

The engineer writes the program into the chip and controls the function of the product through the chip.





# 4

## Prototype test

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Assist customers in the production and testing of product prototypes, and help customers acquire intellectual property rights.

◆ **Prototype production**

◆ **Assembling**

◆ **Test**

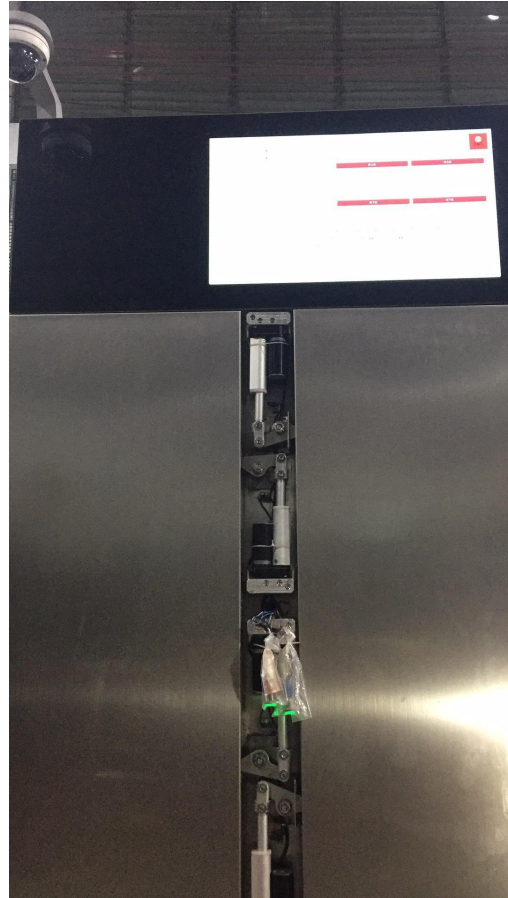
◆ **Complete machine delivery**



# Prototype production



# Field assembly



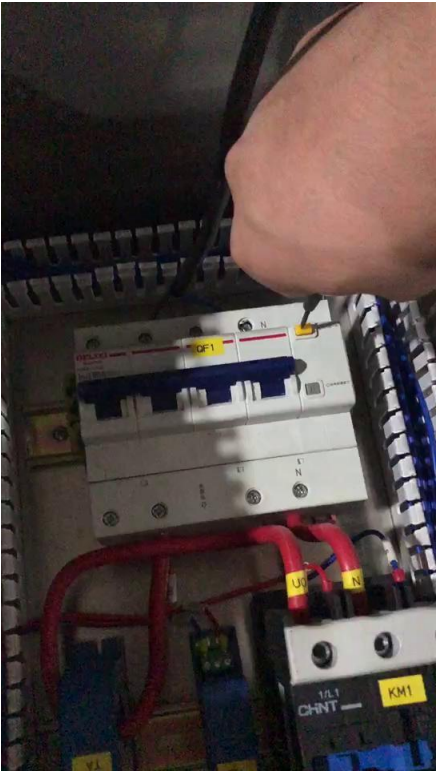
# Product assembly



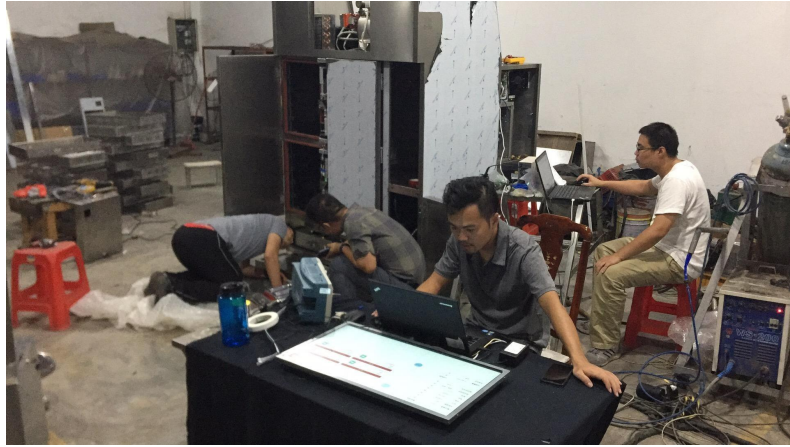
# Product assembly



# Test video



# Product test



# Product test



# Summary of product production and commissioning

## 售餐机生产和调试总结

1. 两侧面板的转角折弯处易变形；**（解决方案：调整折弯位置控制变形情况，工艺调整可解决）。**
2. 显示位的钢化玻璃表面在冲热情况下会出现发黑情况；**（解决方案：玻璃表面加纳米涂层，可解决不粘水气情况，另如果考虑成本问题，可以考虑把钢化玻璃改成亚克力透明胶料来代替，表面一样加纳米涂层）。**
3. 门锁位置：现门锁的推杆位置是1-4在门/2-3是右门，左门的锁力位置有点偏远；**（解决方案：调整锁门推杆的位置，加1-3为左门，2-4为右门，从而将门锁力均匀化）。**
4. 两扇门的强度不够，出现门变形情况；**（解决方案：门内加加重加强筋，增加门的强度）。**
5. 两扇门出现内侧面有水珠情况；**（解决方案：门做两级，内侧加多一层，可让多余水珠流进腔体内，同时也在控制开关的时间上做延迟，让其内部的蒸汽在通过排水管将蒸汽及水排出腔体下方的水槽内）。**
6. 两扇门跟腔体的缝隙偏大；**（解决方案：密封条做内嵌式，把密封条两侧限位高度做成凹槽式，从而改善门缝问题问题）。**
7. 密封条硬度偏硬，无法做到很好的密封；**（解决方案：将密封条结构修改成内嵌式，同时把密封条的规格更换，另将门内侧做凸“V”结构，做到绝对压紧密封状态）。**
8. 门中梁卡槽结构的卡扣过多，门梁中间的按键位置有干涉；**（解决方案：减少卡扣面积，卡位只需做到10MM即可，门梁中间按键位置按实际装配效果尺寸修改图纸）。**
9. 门梁内部的线槽管道的转弯位置是直角结构，安装线路时，出现卡死不顺情况；**（解决方案：将线槽管道做成一件带弧度管，让其顺道方向都不会卡死）。**
10. 门轴螺丝孔和门轴螺丝出现打穿进水现象；**（解决方案：将此位结构修改，用钣金角钢用焊接方式来固定）。**
11. 蒸汽腔体平面出现变形；**（解决方案：腔体内增加加强筋，发泡的模具重新修改调整，做到支撑均匀，受力平衡）。**
12. 蒸汽腔体内部出现变形，主要原因是因为腔体内部未全部焊接，在密封的前提下，腔体内在制冷管换热升温，而升温后在腔体密封的前提下导致腔体增压的情况下，导致未焊接的位置在受压情况出现变形；**（解决方案：蒸汽腔体焊接位置在工艺上一定要保证完成焊接，同时在腔体内部做一定的加强筋）。**
13. 托盘推拉不顺，主要原因是因为腔体内部变形所致；**（解决方案：加大托盘跟腔体装配的间隙，确保有足够空间）。**
14. 清洗功能未达到理想效果，主要原因是因为蒸汽的喷射压力不够；**（解决方案：把排气孔的数量减少，同时把排气孔的直径做小）。**
15. 腔体隔片及隔热效果差，主要原因是因为腔体密封性不够，没有把腔体的全部焊接件焊接，导致在腔体在持续加热时产生的压力时，会在最不受力位置进行挤压，从而又变形导致冷气及热气直接通过隔热层传导在外壳上；**（解决方案：腔体内部的密封性要求焊接位置全焊接工艺，同时将隔热层的厚度从现在的50MM修改到60MM）。**
16. 托盘长度调整，主要原因是两扇门由之前的单层门板修改成双层门板；**（解决方案：把托盘长度减少35MM）。**
17. 蒸汽4个腔体的排水管开口位利角；**（解决方案：开口位置要做倒角加打磨，让不流动更顺）。**

18. 温度传感器的装配效果高出、错位，主要原因是因为制冷机的制冷管道未按要求尺寸来布局，导致在后期无法知道制冷管道的位置；**（解决方案：制冷机管道的布局严格按照要求制作，并作出标记）。**
19. 温度传感器的位置在机台后面有两个槽位，多出一块背板；**（解决方案：出于成本考虑，可以取消背板的背板，因为没有整个背板也不影响外观）。**
20. 蒸汽机的配电箱是独立的，由蒸汽工厂配套提供，有壳体，空间利用浪费；**（解决方案：跟蒸汽供应商沟通，只提供配电箱器件，统一装在整机的配电箱内）。**
21. 整机的配电箱的导轨是安装在侧面的，因配电箱的重量太重，导致整体配电箱子偏边；**（解决方案：把配电箱子的导轨安装在配电箱子底部，从而改善偏边情况）。**
22. 配电箱子的电线接入导轨，因为线路数量过多，位置不够，因此修改了顶面上部分结构；**（解决方案：配电箱子的导轨改到配电箱下方，把配电箱内部布局重新规划，充分使用空间，让配电箱更合理）。**
23. 蒸汽排出出现蒸汽和水一起排出情况，主要原因是水气分离效果未达到理想效果；**（解决方案：水气分离器的内部增加凹凸片状结构，用于过滤水气，让其水气分离达到理想效果）。**
24. 制冷机管道布局不规范，导致温度传感器装配出现问题；**（解决方案：按照尺寸布局，尺寸偏控制在正负3MM内）。**
25. 排风顶部的散热效果不理想；**（解决方案：重新修改散热孔的大小及位置，更符合空气流通原理）。**
26. 污水排出的水温过高；**（解决方案：结构上调整，用铜管管道，增加散热的长度，让水温充分降温，确保连接到水槽的温度控制在30-36度）。**

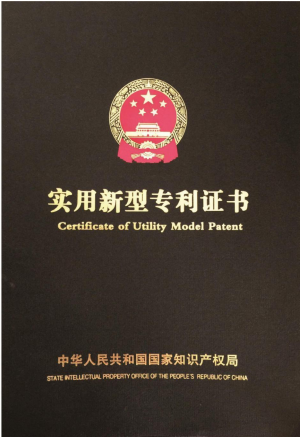
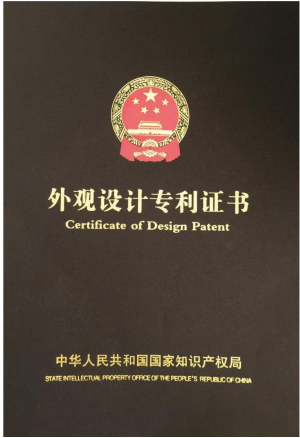
## 项目量产所需人员及责任：

- 一、项目经理：主要跟进项目的生产进展情况，把控整个项目的生产进程，过程出现的问题，要及时找出问题点、沟通、落实解决方案，项目的时间是否按期完成。
- 二、生产经理：主要负责整个生产车间的所有工作安排、负责划分、人员调度，合理调用各部门的生产资源，生产现场管理有如下注意事项：
  1. 生产现场管理包含生产环境与生产流程的管理，生产环境包含现场物资流通安放和清洁卫生，生产流程的控制和调度。以下几点需要集中考虑改进的项目
  - a. 高效-时间性要求：（计划任务的满足实现）
  - b. 灵活-弹性要求：（临时性任务的穿插和突击任务的完成）
  - c. 准时-服务型要求：（项目的交付目标要求）
  - d. 低耗-成本要求：（企业跟企业竞争的必须）
  - e. 清洁生产-环保要求：合格产品和提供优质服务-质量要求
2. 生产部目标主要体现在五方面特征：低成本、合格质量、满意服务、准时性和清洁生产。
- 三、采购部的职责：采购外次配件重要性关系到整个项目的最终结果，如何把现有配件用最短时间、最合理的价格采购回来，按时间、质量标准要求将所购配件采购回仓。
- 四、品质部：部门主管负责本厂加工的半成品、成品的检测，外次加工的配件检测的工作安排，按工程图所要求的标准进行检测，调节检测时间，确保对应时间段完成检测配件是否合格的工作，配合生产周期。
- 五、工程部：负责产品的生产图纸、品质标准的定制、技术指导；配合生产部完成量产工作。

蓝越工业设计部&供应链  
设计部负责人：杨警官  
2019年10月19日



# intellectual property right



# 5

## Production

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Assist customers in mold development and mass production

◆ **Mold development**

◆ **Mass production**

◆ **Small batch test machine**

生产进度

板子(1)

售餐机控制板V2\_Gerber

- 1 MI 09-04 00:00
- 2 内层 09-04 10:16
- 3 层压 09-04 16:52
- 4 钻孔 09-05 01:20
- 5 沉铜 09-05 05:16
- 6 线路 09-05 14:07
- 7 图电 09-05 21:57
- 8 AOI 09-06 08:19
- 9 阻焊 09-06 14:14
- 10 字符 09-06 21:21
- 11 喷锡 09-06 21:33
- 12 测试 全测完成
- 13 锣边、V-CUT 进行中>>>
- 14 QC
- 15 包装、打单、发货

## 产品参数

Z4-510

接口	USB、RS232、TTL、RS485、韦根					
工作电压	标准：DC 5V±5% 可选：DC 3.3V±5% (USB、TTL/232、RS232、RS485、韦根)					
工作电流	190MA (最大电流)					
光源	4颗 LED					
传感器	CMOS 阵列传感器					
分辨率	640×480 像素 (30万像素)					
读码角度	倾斜: ±45° 偏转: ±50° 旋转: ±180°					
视场角度	水平 53° , 垂直 40°					
识读精度	≥ 9mil					
参考景深	测试条码	条码介质	密度	尺寸	最小景深	最大景深
	QR CODE 支付条码	屏幕	44.17mil (1.12mm)	23mm*23mm	1.5cm	14cm
	QR CODE 支付条码	屏幕	59.17mil (1.5mm)	31mm*31mm	2cm	15cm
	QR CODE 支付条码	屏幕	77.50mil (1.97mm)	40mm*40mm	2.5cm	18cm
支持码制	1D: CODE 128,GS1-128,AIM-128,EAN-8,EAN-13,ISSN,ISBN,LPC-A,LPC-E,INTERLEAVED 2 OF 5,(1F),MATRIX 2 OF 5,INDUSTRIAL 2 OF 5,STANDARD 2 OF 5 (IATA 2 OF 5) ,CODE 93,CODE 11,CODE 39,CODABAR,GS1-DATABAR(RSS),PLESSEY,MSI-PLESSEY 2D: QR CODE,DATA MATRIX,PDF417					
工作温度	0° C至 50° C					
储存温度	-5° C至 55° C					
工作湿度	5%~95% (无凝结)					
物理尺寸	65mm x 61mm x 30mm (长*宽*高)					
重量	32.5克					
可选配件	线材类: 180°嵌入式模组测试套件					
	PC主板USB 数据线					
	安卓开发板TTL/RS232/RS485/WIEGAND (PHD2.54MM间距) 数据线					
	安卓开发板TTL/RS232/RS485/WIEGAND (PHD2.0MM间距) 数据线					
	安卓开发板USB (PHD 2.54MM间距) 数据线规格					
	安卓开发板USB (PHD 2.0MM间距) 数据线规格					
二次开发	电脑用RS232数据线+USB供电线					
	支持二次开发, 通过串口指令实现					

# Mold development

Assist customers to carry out product mould



# volume production

Assist customers in risk control of mass production, etc





## Delivery

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◆ Physical display

◆ Product launch

◆ Complete machine delivery

# Physical display



# Physical display





## Complete machine delivery



# Product launch



# Product launch





# Thank you for watching

September 12, 2019

