



FOGANG COUNTY GUOZHU PLASTIC CO.,LTD
TE: +86-763-4636368 FAX: +86-763-4631798



4000BPH PP LARGE INFUSION BOTTLE PROJECT

INJECTION MOLD (32 BOTTLE PREFORMS PER

INJECTION) BOTTLE PREFORMS TRANSPORTATION

REFLUX

4000B/h (大输液) 方案书

注坯模 1 出 32

运坯回流



Guangdong Guozhu Enterprise Group

Guozhu Precision Mold Co., Ltd

Guozhu Plastics Co., Ltd

Guozhu Blowing Equipment Co., Ltd

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Address: Huanghua Lake industrial park, Qingyuan city, Guangdong Province, China



I. Company Introduction:

Guozhu Group Co., Ltd. was founded in 1993. It's a Sino-foreign joint venture high-tech enterprise, which is located in Huanghua Lake Industrial Zone, Fogang County, Qingyuan City of Guangdong Province. The Group takes up over 60,000 square meter of land and its fixed assets are worth more RMB 90 million. The Group is a professional manufacturer that integrates technical R&D, product design and product manufacturing. The Group is particularly specialized in the manufacture of automatic rotary bottle blowing machines, automatic linear bottle blowing machines, precision molds, plastic processing equipment, processing of spare parts, and production of PET, PP products, etc.

Guozhu Blowing Equipment Co., Ltd., Guozhu Precision Mold Co., Ltd. and Guozhu Plastic Co., Ltd. are subsidiary company under the Guozhu Group. The company is staffed with a number of professional designer, production and sales teams, who are strictly trained. The precision processing equipments are imported from Switzerland, Britain, Japan and other countries, which has perfect machining and heat treatment system, thus to ensure the realization of each design. Precision components must be tested by German Zeiss 3D test device before assembling. The products of the company have gained wide recognition from its clients because they are technologically reliable and economically efficient and durable, and their markets across China and overseas including more than 30 countries and regions.

Our company has established a set of effective management system, and passed the ISO9001 quality system certification in 2003. We always do in accordance with the standard procedures and quality control from raw materials procurement, product design, fabrication, inspection until the after-sales service, thus to ensure that customers use to reliable and durable products, at the same time providing customers with the whole factory and production line design and technical consultation. Our company has three national utility model patents, so our technology is in leading level in this industry.

Quality Guarantee of the Company: Thanks to the company's strong capabilities of design, processing, and testing on finished products, the excellent qualities of the products manufactured are reliably guaranteed.

Corporate Philosophy: The Group holds a belief that it should run factory with guideline of morality and good manners of man can create quality products. It strictly follows its management idea, i.e., "Honesty for Prosperity; Innovation for Excellency; "Moral Decency for Growth". It upholds the creed of "Quality First and Customer Foremost", offering quality products and services to its clients with great sincerity.



II. Quotation

| System | No. | Name | Description | Qty | Unit / USD | Amount / USD | Remark |
|----------------------------|-----|--|-------------------------|-------|------------|--------------|---|
| 注塑系统 Injection system | 1-1 | 注塑机 Injection machine | 330PETIII | 1set | \$73530 | \$73530 | |
| | 1-2 | 吸料机 Suction machine | SAL-810G | 1set | \$1912 | \$1912 | |
| | 1-3 | 料斗 Hopper | 500kg | 1set | \$3088 | \$3088 | |
| | 1-4 | 冷水机 Air cool Chiller | 20P | 1set | \$6177 | \$6177 | |
| Injection auxiliary system | 2-1 | 注塑模具 Mold 1 (100ml) | 32cav. (9g) | 1set | \$63236 | \$63236 | 坯环一体 Bottle preform and bottle ring integrated |
| | 2-2 | 注塑模具 Mold 2 (250ml) | 32cav. (12g) | 1set | \$63236 | \$63236 | 坯环一体 Bottle preform and bottle ring integrated |
| | 2-3 | 注塑模具 Mold 3 (500ml) | 32cav. (16g) | 1set | \$63236 | \$63236 | 坯环一体 Bottle preform and bottle ring integrated |
| | 2-4 | 注塑模具 Mold 4 (1000ml) | 16cav. (27g) | 1set | \$36765 | \$36765 | 坯环一体 Bottle preform and bottle ring integrated |
| | 2-5 | 机械手 Horizontal walking three-axis single-arm manipulator for Bull-Head planer | NT1500WSS3 | 1set | \$14706 | \$14706 | |
| | 2-6 | 机械手夹具 1 Preform pickup shelf 1 | 32Cav. (17g) | 1set | \$1471 | \$1471 | |
| | 2-7 | 机械手夹具 2 Preform pickup shelf 2 | 32Cav. (10.5g) | 1set | \$1471 | \$1471 | |
| | 2-8 | 机械手夹具 3 Preform pickup shelf 3 | 32Cav. (26g) | 1set | \$1471 | \$1471 | |
| | 2-9 | 机械手夹具 4 Preform pickup shelf 4 | 16Cav. (26g) | 1set | \$1471 | \$1471 | |
| | 3-1 | 瓶坯加载装置 Bottle preform loading device | | 1 set | \$29412 | \$29412 | |
| | 3-2 | 运坯输送带 1 Bottle preform conveyor | 约 6 米 About 6 meters | 1 set | | | |



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| | | | | | | | |
|---|------|--|-------------------------|------|----------|----------|--|
| | | belt 1 | | | | | |
| | 3-3 | 运坯输送带 2 Bottle preform conveyor belt 2 | 约 2 米 About 2 meters | 1set | | | |
| | 3-4 | 瓶坯冷却装置 Bottle preform cooling device | | 1set | | | |
| | 3-5 | 回流输送带 Reflux conveyor belt | | 1set | | | |
| | 3-6 | 回流转子座 Reflux rotor seat | | 1set | | | |
| 吹灌封系统 Blowing Filling Sealing system | 4-1 | 吹灌封 PMLBGF-04-24-14-14 | | 1set | \$220589 | \$220589 | Capacity: 4000BPH (500ml) 1000BPH (1000ml) |
| | 4-2 | 吹瓶模具 Blowing Mold (500ML) | 4Cav. | 1set | | | |
| | 4-3 | 快速换模装置 Mold exchange equipment | | 1set | | | |
| | 4-4 | 回收气装置 Recovery gas device | | 1set | | | |
| | 4-5 | 风冷式冷水机 Air-cooled chiller | 5 匹 (5p) | 1set | | | |
| | 4-6 | 风冷式冷水机 Air-cooled chiller | 10 匹 (10p) | 1set | | | |
| | 4-7 | 吹瓶模具 Blowing Mold (1000ML) | 2Cav. | 1set | \$3530 | \$3530 | |
| | 4-8 | 吹瓶模具 Blowing Mold (100ML) | 4Cav. | 1set | \$3530 | \$3530 | |
| | 4-9 | 吹瓶模具 Blowing Mold (250ML) | 4Cav. | 1set | \$3530 | \$3530 | |
| | 4-10 | 吹瓶机与灌装连接装置 Connection device between bottle blowing machine and filling machine | | 1set | \$22059 | \$22059 | |
| 空压机系统 Air compressor system | 5-1 | 无油空压机 Oil-free Compressor (4MPa) | 6M ³ | 1set | \$51471 | \$51471 | |
| | 5-2 | 干燥机 Dryer | | | | | |
| | 5-3 | 精密过滤器 Precision Filter | | | | | |
| | 5-4 | 储气罐 Tank | 1.5M ³ | | | | |
| | 5-5 | 冷水机 Chiller | 5 匹 (5p) | | \$2648 | \$2648 | |
| 小计 Total | | | | | | \$668539 | |



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| | |
|--|---|
| 出厂价 Total EXW Price | Six Hundred and Sixty-Eight Thousand Five Hundred and Thirty-Nine USD |
| 交货期 Deliver Time: 3 个月 3 months (收到预付款和输液瓶设计图纸起) (after receiving advance payment and confirmation of infusion bottle drawings) 报价有效期: 30 天 Valid time: 30 days 报价时间: 2023 年 6 月 30 日 星期五 Quotation time: Friday, June 30, 2023 | |

1.价格条款: EXW 佛冈县国珠塑胶有限公司

Price term: EXW FOGANG COUNTY GUOZHU PLASTIC CO., LTD

2. 交货地点: 佛冈县国珠塑胶有限公司

Place of delivery: Fogang County Guozhu Plastic Co., Ltd

3.报价包括售前技术支持和售后技术培训。

The quotation is included pre-sale technical support and after-sales technical training.

4.需方应严格按照设备操作规程正确使用设备, 供方设备保修期为设备验收合格后 12 个月。

The demander shall use the equipment correctly in strict accordance with the equipment operating procedures, and the supplier's equipment warranty period is 12 months after the equipment is accepted.

5.交货方式: 佛冈县国珠塑胶有限公司工厂集装箱装车

Delivery method : container loading in Fogang County Guozhu Plastic Co., Ltd factory

6.售后服务: 提供机器设备组装过程的视频或工程师在线远程指导, 组装相关机器设备服务。

After-sale service: Provide a video of the assembly process of machines or the engineer's online remote guide to assemble machines service.

7.供方技术人员在需方工厂提供安装、调试、培训、现场指导、安全维护等知识。需方应指派技术人员协助跟踪和接受培训。供方技术人员往返交通、食宿等费用由需方承担。出国时, 需方还应负责供方工程师的签证费、往返机票费、食宿费, 以及每位工程师 150 美元/天的工资。一般来说, 如果需方需要这项服务, 供方将派遣一名经验丰富的工程师到国外需方工厂指导机器安装和现场培训, 通常在 15 天左右。

The Supplier's technicians provide installation, commissioning, training, on-site guidance, safety maintenance and other knowledge in the Demander' s factory. The Demander shall assign technical personnel to assist in tracking and receiving training. The round-trip transportation, meals and



accommodation expenses of the supplier's technical personnel shall be borne by the Demander. When going abroad, the Demander shall also be responsible for the engineer's visa fee, round-trip air ticket, accommodation and meals fee, and also USD150/day for each engineer as salary. Generally speaking, if Demander needs this service, Supplier will send an experienced engineer to a foreign Demander's factory to guide the machine installation and on-site training, usually about 15 days.

8.包装标准和包装材料的供应和回收：标准包装，不回收包装材料。

Supply and recycling of packaging standards and packaging materials: standard packaging, packaging materials are not recycled.

9.验收标准及方法：按设备说明书及双方达成的共识，验收后如有异议，于验收之日起拾天内提出。

Acceptance standards and methods: According to the equipment manual and the consensus reached by both parties, if there are any objections after acceptance, they shall be raised within ten days from the date of acceptance.

10.结算方式及期限：合同签订3天内支付合同总额30%预付款，设备制造完成支付合同总额70%后发货。

Payment Term: Within 3 days after signed the contract, the buyer pay **30%** as deposit; and the rest of **70%** should be paid before shipment.

11.解决合同纠纷的方法：双方友好协商。如果协商不成，需方可以向供应商所在地的法院提起诉讼。

The way to solve the contract dispute: both parties negotiate amicably. If the negotiation fails, they can file a lawsuit in the court where the supplier is located.

12.本合同经双方代表签字盖章后立即生效，合同传真自需方发出预付款之日起生效。

The contract shall come into force immediately after being signed and sealed by representatives of both parties, and the fax of the contract shall be valid from the date of sending the advance payment by the Demander.



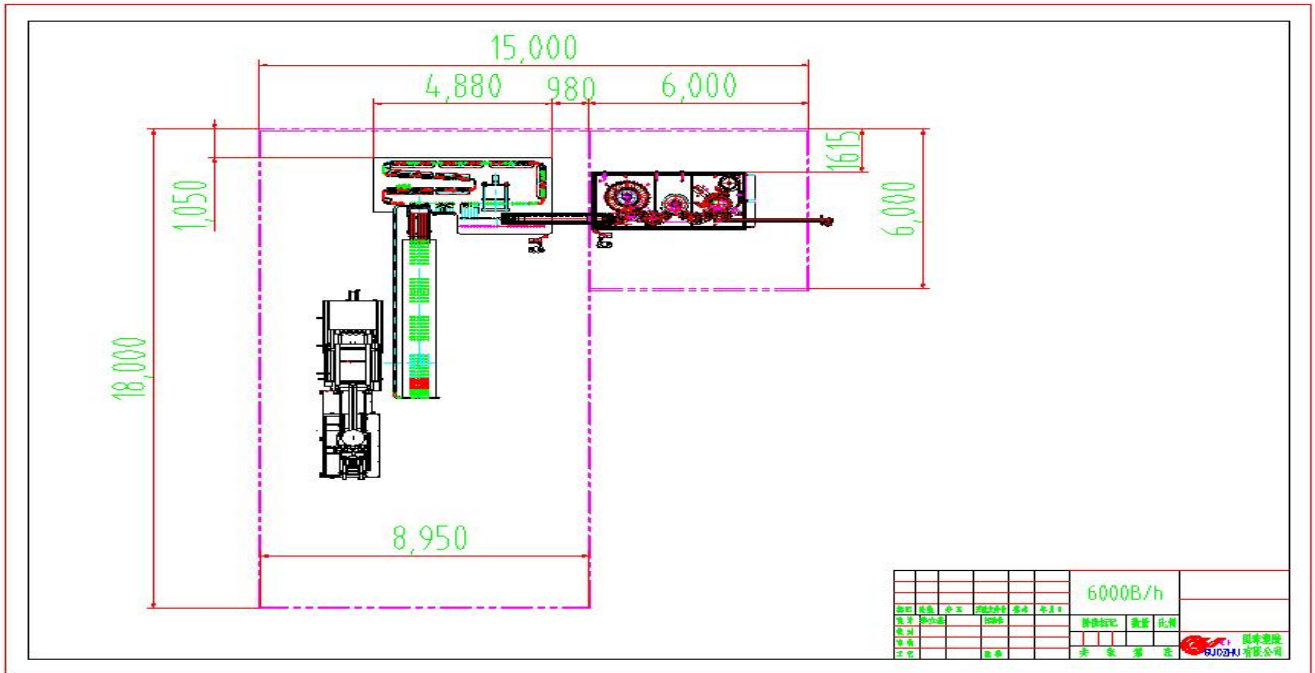
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| 供方 Supplier | 需方 Demander |
|---|----------------------------------|
| 单位名称：佛冈县国珠塑胶有限公司 Organization：Fogang County Guozhu Plastic Co., Ltd | 单位名称： Organization: |
| 单位地址：广东省佛冈县汤塘镇黄花湖工业区 Address：Huanghuahu Industrial Zone, Fogang County, Qingyuan City, Guangdong Province, China | 单位地址： Address: |
| 委托代理人： Agent: | 委托代理人： Agent: |
| 开户银行： Bank of Deposit: | 开户银行： Bank of Deposit: |
| 银行帐号： Bank Account Number: | 银行帐号： Bank Account Number: |
| 电话：0763-4636368 Telephone： 传真：0763-4631798 Fax: | 电话： Telephone： 传真： Fax: |



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III. Layout Drawing 平面布置图



IV. Injection molding machine 注塑机部分





A: Main Characteristic

- 1) Specially made PP screw highly increases the plasticizing speed and shot weight, lowers the plasticizing speed and show weigh t, lowers the plasticizing temperature and AA value, also lowers the shearing of perform, while achieves better transparency.
- 2) The melt speed is fast and the injection volume is large. The plasticizing temperature of 280-295 decreases AA value significantly, which improves the shrinkage of bottle blank and transparency effectively. Production of bottle blanks to reduce the bottle blowing process adjustment.
- 3) Low melt temperature, low injection pressure (100map), low energy consumption;
- 4) Increase ejection force and ejection travel to meet the ejection requirements of billets;
- 5) Including Mold needle valve control interface;

B: Technical specification of PP1300-V6

| Special Model | | Unit | PP1300-V6 |
|------------------------|-------------------------------------|-----------------|-----------|
| International Model | | | 3300-2124 |
| 注射装置 Injection Unit | 螺杆直径 Screw Diameter | mm | 83 |
| | 理论注射容积 Theoretical injection volume | cm ³ | 1840 |
| | 注射量 (PP) Injection volume | g | 1325 |
| | 注射行程 Injection stroke | mm | 340 |
| 锁模单元 Clamping Unit | 锁模力 Clamping force | KN | 3300 |
| | 开模行程 Opening stroke | mm | 600 |
| | 模板最大开距 Max.daylight | mm | 1300 |
| | 导柱内距 (水平*垂直) Platen size | mm*mm | 670*670 |
| | 模板尺寸 (水平*垂直) Space between bars | mm*mm | 985*985 |
| | 最大模厚 Max. mold height | mm | 700 |
| | 最小模厚 Min. mold height | mm | 300 |
| | 顶针行程 Ejector stroke | mm | 180 |
| 顶出力 Ejector force | KN | 184 | |



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| | | | | |
|------------------------|----------------------------------|-------|--------------|-----|
| | 顶退力 Ejector stroke | KN | 115 | |
| | 顶针数目 Number of ejector pins | pcs | 12+1 | |
| 动力/电热 Power/Heating | 油压系统压力 Hydraulic system pressure | Mpa | 17.5 | |
| | 油泵电机功率 Pump motor power | KW | 37 | |
| | 加热功率 Heater power | KW | 28 | |
| | 总电流 Total current | A | 197 | 207 |
| 其他 Other | 油箱容量 Oil tank capacity | L | 650 | |
| | 理论机重 Machine weight | Ton | 10.6 | |
| | 外形尺寸 Machine dimensions | m*m*m | 7.1*1.62.2.3 | |

C: Main parts and place of origin

| No. | Product | Model | Orgin |
|-----|----------------------------------|-----------------------------|----------------------------|
| 1 | 熔胶油马达 Melt oil motor | INTERMOT 英特姆 | 意大利 Italy |
| 2 | 比例变量泵 Proportional variable pump | YUKEN 油研 | 日本 Japan |
| 3 | 方向阀 Directional valve | YUKEN 油研 | 日本 Japan |
| 4 | 溢流阀 Overflow valve | YUKEN 油研 | 日本 Japan |
| 5 | 电脑（全套） Computer (full set) | TECHMATION 弘讯 | 台湾 Taiwan |
| 6 | 伺服控制器 Servo Controller | MODROL 蒙德 | 中国 China |
| 7 | 伺服电机 Servo Motor | Hilectro 海迈克 | 中国 China |
| 8 | 油 泵 Oil Pump | ECKERLE 艾可勒/ SUMITOMO 住友 | 德 国 / 日 本 Germany/Japan |
| 9 | 调模液压马达 Modulated hydraulic motor | EATON/WHITE | 美国 USA |
| 10 | 电子尺 Electric gauge | GEFRAN 杰弗伦 | 意大利 Italy |
| 11 | 热电偶 Thermocouple | 容达 | 中国 China |
| 12 | 空气开关 Air Switch | 梅兰日兰 MERLIN GERIN | 法国 France |
| 13 | 行程开关 Stroke Switch | SCHNEIDER 施耐德 | 法国 France |
| 14 | 光电开关 Photoelectric switch | 索能 | 中国 China |
| 15 | 接近开关 Proximity switch | 索能 | 中国 China |
| 16 | 热继电器 Electric appliance relay | SCHNEIDER 施耐德 | 法国 France |



| | | | |
|----|--|---------------------------|-----------|
| 17 | 热继电器座 Electric appliance relay seat | SCHNEIDER 施耐德 | 法国 France |
| 18 | 单极自动开关 Monopole automatic switch | SCHNEIDER 施耐德 | 法国 France |
| 19 | 双极自动开关 Bipolar automatic switch | SCHNEIDER 施耐德 | 法国 France |
| 20 | 交流接触器 AC Conductor | SCHNEIDER 施耐德 | 法国 France |
| 21 | 精密油封/尘封 Precision oil seal / dust seal | NOK | 日本 Japan |
| 22 | 球墨铸件 Spherical casting | ZHONGTIAN 中天 (QT500-7) | 中国 China |
| 23 | 哥林柱 Tie-bar | 将军机械/HUDINH 华鼎 | 中国 China |
| 24 | 料管组件 Pipe assembly | HUAYE/华业/台湾泰星 | 中国 China |
| 25 | 高压油管 High-pressure pipeline | 新宇/力冠 | 中国 China |

V. Mold System

A: Introduction of Guozhu Mold:、模具系统

(1) Years of design experience and optimized bottle embryo cooling design can achieve faster cycle and improve production efficiency;

(2) There are advanced vacuum treatment equipment. Vacuum treatment of Mold materials makes the Mold more wear-resistant, corrosion-resistant and easy to maintain. After vacuum treatment of parts, HRC is greater than 45 degrees, and the Mold is more durable.

(3) The parts with international advanced processing equipment have high precision, and the standardized parts of each part of the Mold are interchangeable.

(4) The design of cooling Mold lip improves the stability of the size of the bottle embryo thread.

(5) The Mold base plate is made of high performance Mold base steel, and the forming chamber parts are made of stainless steel S136, which is vacuum treated and wearable.

(6) Self-lubricating guide configuration: Mold lip wear-resistant plate, cavity plate guide sleeve, slide plate guide sleeve are all imported brass inlaid with graphite, clean and oil-free, wear-resistant and durable;



(7) New hot runner structure, more suitable for PP bottle embryo production; parts manufacturing high standards, hot Mold parts materials and imported parts to ensure interchangeability and maintenance, excellent comprehensive performance, to meet industry standards;

B、Material list of main parts of Mold:

| 材料名称 Material Name | | 材质/产地/供应商 Material/Origin/Supplier |
|--------------------|-------------------------------------|---|
| 1 | 模架板 Mold Shelf plate | 不锈钢 Stainless steel |
| 2 | 模唇板 Mold lip plate | 不锈钢 Stainless steel |
| 3 | 模唇耐磨板 Mold lip wear-resistant plate | 含石墨的进口高力黄铜 imported high-strength brass containing graphite |
| 4 | 模腔板 Cavity plate | 不锈钢 Stainless steel |
| 5 | 推板 Push plate | 不锈钢 Stainless steel |
| 6 | 模芯板 Core plate | 不锈钢 Stainless steel |
| 7 | 热流道板 Hot runner plate | 不锈钢 Stainless steel |
| 8 | 热流道固定板 Hot runner fixing plate | 不锈钢 Stainless steel |
| 9 | 热流道汽缸板 Hot runner Cylinder plate | 不锈钢 Stainless steel |
| 10 | 模芯 Mold core | 不锈钢 Stainless steel: S136 |
| 11 | 模芯座 Mold core seat | 不锈钢 Stainless steel: S136 |
| 12 | 水芯 Water core | 不锈钢 Stainless steel: S136 |
| 13 | 模腔 Mold cavity | 不锈钢 Stainless steel: S136 |
| 14 | 模唇 Mold lip | 不锈钢 Stainless steel: S136 |
| 15 | 阀针 Valve needle | SKD-61 |
| 16 | 顶杆 Ejector | 不锈钢 Stainless steel |
| 17 | 发热圈 Heating ring | 意大利 Italy |
| 18 | 铜射嘴 Copper nozzles | 国珠标准 Guozhu |
| 19 | 钛合金帽 Titanium Alloy Cap | 国珠标准 Guozhu |



| | | |
|----|-----------------------------------|---|
| 20 | 模唇板导套 Mold Lip Plate Guide Sheath | 含石墨的进口高力黄铜 Imported High-strength Brass Containing Graphite |
| 21 | 模腔板导套 Mold Cavity Guide Plate | 含石墨的进口高力黄铜 Imported High-strength Brass Containing Graphite |
| 22 | 发热管 Heat pipe | C Y |
| 23 | 热电偶 Thermocouple | C Y |

C、List of spare parts for each set of Molds:

| 备件名称 Name | 数量 Qty | 单位 Unit | 备注 Remark |
|-----------------------|---|---------|-----------------------|
| 1 模芯 Mold Core | 1 | 件 pcs | 模具备件 Mold Spare Parts |
| 2 模芯座 Mold Core Seat | 1 | 件 pcs | 模具备件 Mold Spare Parts |
| 3 水芯 Water Core | 1 | 件 pcs | 模具备件 Mold Spare Parts |
| 4 模腔 Mold Cavity | 1 | 件 pcs | 模具备件 Mold Spare Parts |
| 5 模唇 Mold Lip | 1 | 副 pair | 模具备件 Mold Spare Parts |
| 6 阀针 Valve needle | 1 | 件 pcs | 模具备件 Mold Spare Parts |
| 7 O 型圈 O ring | 各部各 2 套 2 sets of Mold spare parts in each part | | 模具备件 Mold Spare Parts |
| 8 格莱圈 Gray Ring | 各部各 2 套 2 sets of Mold spare parts in each part | | 模具备件 Mold Spare Parts |
| 9 快速接头 Fast connector | 4 | 件 pcs | 模具备件 Mold Spare Parts |
| 10 时间继电器 Time Relay | 2 | 件 pcs | 模具备件 Mold Spare Parts |
| 11 顶杆 Push Rod | 1 | 件 pcs | 模具备件 |
| 12 三通接头 Tee joint | 1 | 件 pcs | 模具备件 Mold Spare Parts |



| | | | | |
|----|---|---|--------|---|
| 13 | 消声器 Muffler | 2 | 件 pcs | 模具备件 Mold Spare Parts |
| 14 | 固态继电器 Solid State Relay 5A | 2 | 个 pcs | 温控配件 Temperature controller Accessories |
| 15 | 固态继电器 Solid State Relay 40A | 2 | 个 pcs | 温控配件 Temperature controller Accessories |
| 16 | 保险丝 Fuse 5A | 5 | 个 pcs | 温控配件 Temperature controller Accessories |
| 17 | 保险丝 Fuse 32A | 5 | 个 pcs | 温控配件 Temperature controller Accessories |
| 18 | 可控硅 SCR | 2 | 个 pcs | 温控配件 Temperature controller Accessories |
| 19 | 温控仪说明书 1 份 Manual Book for temperature controller | 1 | 本 Book | |

D、技术验收标准 Technical Acceptance Standard

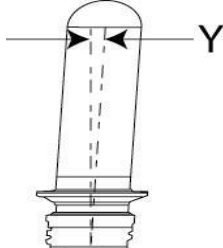
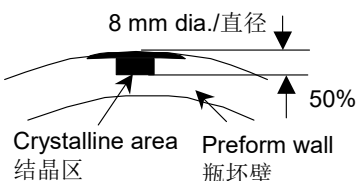
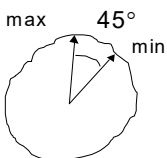
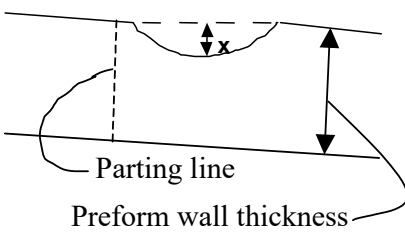
Preform Specifications/瓶坯规格

| Attribute/品质 | Specification/规格 |
|---------------------------|--|
| 1) Thread tolerances/螺纹公差 | <p>Thread tolerances are as per the International Society of Beverage Technologists “ISBT” standards. If the thread finish type is not within the ISBT standards, tolerances will be based on the Guozhu approved preform drawing.</p> <p>螺纹公差是根据国际社会饮料专家“ISBT”标准，ISBT 标准中未列出的以经核准的国珠瓶胚图纸为准。</p> <p>All ISBT standards can be viewed at www.threadspeccs.com 可在 www.threadspeccs.com 查阅所有 ISBT 标准</p> |

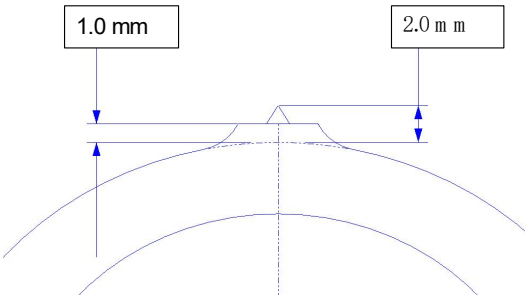


| Attribute/品质 | Specification/规格 | | | | | | | | | | | | | | | | |
|---|---|--------------|------------------------|-----------------------------|--|--|----------|-----------|--------|--------|--------|-------------|--------|--------|---------|--------|--------|
| 2) Thread dimensions inspected/螺纹直径检查 | Standard dimensions inspected are as per the drawing shown 标准直径检查如图 | | | | | | | | | | | | | | | | |
| 3) Individual preform weight variation from nominal 单独的瓶坯重量与名义重量的差异 | Nominal weight/设计重量 | Tolerance/公差 | | | | | | | | | | | | | | | |
| | Less than 20g/少于 20g | ± 0.2 g | | | | | | | | | | | | | | | |
| | 20g to 35g/20 至 35g | ± 0.3 g | | | | | | | | | | | | | | | |
| | Greater than 35g to 50g/ 大于 35g 至 50g | ± 0.4 g | | | | | | | | | | | | | | | |
| | Greater than 50g/大于 50g | ± 1 % | | | | | | | | | | | | | | | |
| 4) Maximum allowable weight variation between preforms in one shot. 在一批瓶坯中可接受的最大的重量差异 On an Index system, one shot is defined as a "single" face of the mold. Index 系统一批的定义模具的单面 | Nominal Weight/设计重量 | Tolerance/公差 | | | | | | | | | | | | | | | |
| | Less than 35g/少于 35g | 0.3 g | | | | | | | | | | | | | | | |
| | 35g to 50g/35g 至 50g | 0.4 g | | | | | | | | | | | | | | | |
| | Greater than 50g/大于 50g | 1% | | | | | | | | | | | | | | | |
| 5) Wall thickness variation/壁厚差异 | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Preform length 瓶坯长度</th> <th colspan="2">Preform wall thickness/瓶坯壁厚</th> </tr> <tr> <td></td> <th>< 3.20mm</th> <th>>=3.20mm.</th> </tr> </thead> <tbody> <tr> <td><120mm</td> <td>0.14mm</td> <td>0.12mm</td> </tr> <tr> <td>120 - 140mm</td> <td>0.17mm</td> <td>0.15mm</td> </tr> <tr> <td>> 140mm</td> <td>0.20mm</td> <td>0.18mm</td> </tr> </tbody> </table> Wall thickness variation = maximum wall thickness minus minimum wall thickness 瓶坯厚度差异=最大壁厚 - 最小壁厚 Measured on the straight section of the preform body 5mm from both the neck ring and gate insert parting line. 分别从瓶坯距模唇和模腔底部 5mm 的直壁部分测量。 | | Preform length 瓶坯长度 | Preform wall thickness/瓶坯壁厚 | | | < 3.20mm | >=3.20mm. | <120mm | 0.14mm | 0.12mm | 120 - 140mm | 0.17mm | 0.15mm | > 140mm | 0.20mm | 0.18mm |
| Preform length 瓶坯长度 | Preform wall thickness/瓶坯壁厚 | | | | | | | | | | | | | | | | |
| | < 3.20mm | >=3.20mm. | | | | | | | | | | | | | | | |
| <120mm | 0.14mm | 0.12mm | | | | | | | | | | | | | | | |
| 120 - 140mm | 0.17mm | 0.15mm | | | | | | | | | | | | | | | |
| > 140mm | 0.20mm | 0.18mm | | | | | | | | | | | | | | | |
| 6) Perpendicularity/垂直度 | Preform Length/瓶坯长度 | Tolerance/公差 | | | | | | | | | | | | | | | |



| Attribute/品质 | Specification/规格 | |
|--|--|--------------------------|
|  (prior to re-heat/在加热前) | Up to 120mm | 1.0mm Maximum/最大 |
| | 120mm to 200mm | 1.2mm Maximum/最大 |
| 7) Overall length /全长 (excluding gate protrusion/不包括突出的水口) | Preform length/瓶坯长度 | Tolerance/公差 |
| | ≤ 120mm | ± 0.5mm |
| | >120 mm | ± 0.5% of perform length |
| 8) Crystallinity/结晶度  | Crystallinity in gate area: to be within 8mm diameter centered on gate tip (for preform base diameter less than 35mm) 水口区的结晶度: 在水口端中心直径 8mm。 Crystallinity through the gate area: to have a depth less than 50% of the bottom wall thickness 水口区结晶深度: 结晶深度不小于底部壁厚的 50% Crystallinity in body: not acceptable 瓶坯壁结晶度: 不可接受 | |
| 9) Sink marks/水痕  | Thread area (external): /螺纹区 (外部) - less than 0.5mm deep if up to 3.0mm long, or less than 0.3mm deep if up to 12mm long 小于等于 3.0mm 时深度 0.5mm, 或者小于等于 12mm 深度小于 0.5mm, Preform body:/瓶坯身 - less than 0.08mm (over 小于 0.08mm(超过 45°) | |
| 10) Parting line deformation/合模线部位变形 (Valid for Index molds only 只适用于 Index 模具)  | Parting ine deformation "PLD" on preform body : 在瓶坯上合模线部位的变形"PLD" Many factors effect PLD including , preform design, parting line location, processing conditions 许多因素会导致 PLD 现象, 包括:瓶坯设计, 合模线位置, 加工工工艺条件 Wall thickness less than 4.00mm.: Max. 0.20mm 壁厚小于 4.00mm: 最大 0.20mm Wall thickness 4.0mm and greater: Max. 5% of wall thickness 壁厚大于等于 4.0mm: 最大的壁厚 5% (Wall thickness measured and neck ring/cavity parting line/壁厚 | |



| Attribute/品质 | Specification/规格 | |
|--|--|--|
| | 测量和模唇/模腔合模线) | |
| 11) Scratches/划痕 | Preform Body/胚身 * Not acceptable if:/不可接受 - longer than 20mm / - 长于 20mm - over 10 scratches per cm ² 每平方厘米多于 10 处划 痕 | Thread Area/螺纹区域 * Not acceptable if:/ 不可接 受 - - longer than 5mm / - 长于 5mm - over 2 scratches per cm ² 每平方厘米多于 2 处划痕 |
| 12) Mismatch between parting lines/合模线 错位 (excluding any mismatch designed into the perform/不包括任何瓶坯的错位设计) | 0.13 mm (maximum/最大) | |
| 13) Flash/飞边 | 0.13mm (maximum/最大) | |
| 14) Bubbles or unmelts/气泡或未熔物 | Not acceptable/不可接受 | |
| 15) Short shots/缺料 | Not acceptable/不可接受 | |
| 16) Surface contamination/表面污染 | Inner and outer surface to be free of foreign material, e.g. dirt, grease, oil, .../内部或外部不应沾染其它物质, 如污垢,油脂 等..... | |
| 17) Embedded contamination/植入污染 | Not acceptable/不可接受 | |
| 18) Gate length/水口长度 |  <p>Solid portion of gate vestige must not exceed 1.0mm in length. Any other protrusions (i.e. stringing) must not exceed 2.0mm in length. Dimensions are measured from the tangent point of the gate radius. 注点的固体部分残留不能超过 1.0mm。任何其它突出不能超 过 2.0mm 长)。 尺寸测量是从胚底半径的切点开始量起</p> | |
| 19) Hole in injection point/注射点孔 | Less than 1.0mm deep/小于 1.0mm 深 | |
| 20) Cold slugs/冷料块 | Not acceptable/不可接受 | |
| 21) Haze/发雾 | Not acceptable/不可接受 | |
| 22) Moisture rings/湿环 | Not acceptable/不可接受 | |
| 23) Degraded material/材料降解 | Not acceptable/不可接受 | |
| 24) Gate lines/水口线 | Not acceptable/不可接受 | |
| 25) Weld lines top of vent 排气口焊线 | Not acceptable/不可接受 | |



VI. PP Blow Molding Machine 吹瓶机系统

A: Main parameters of PMLBGF-06-28-18-18

| | | | | | |
|----------------------|----------------------------------|----------------------------|----------------------------------|----------------------|--------|
| Product Parameter | Max. Volume of Bottle | 500ml (6 cavities) | 1000ml (3 cavities) | | |
| | Capacity | 6000~6600 (500ML) | 1500~1700 (1000ML) | | |
| | Max. Diameter of Bottle | 68mm | 98mm | | |
| | Bottle Mouth Diameter | ≤ \varnothing 38mm | | | |
| | Max. Height of Bottle | 230mm | | | |
| | Max. Height of Preform | 130mm | | | |
| | Clamping Stroke | 90mm | Thickness of Mold | 180mm | |
| | Bottom Mold Stroke | Mechanical synchronization | Layer of Lamp | 8 | |
| | Rotor Distance | 55mm | Heating Rotor Qty. | 228 | |
| | Service Power | 30-35KW | Installed Power | 120KW | |
| | Low Pressure | 0.8MPa | High Pressure turn Low Pressure | 2m ³ /min | |
| | High Pressure | 2.6~3.0Mpa | Air Consumption of High Pressure | 6m ³ /min | |
| | Dimensions of Machine | 5000×4700×3000mm | Weight | 8.2t | |
| | Filling Machine Parameters | Washing Station | 28 pcs | Filling Station | 18 pcs |
| Cap Sealing Station | | 18 pcs | Filling Error | ≤± 1-2% | |
| Installed Power | | 24 KW | Power Supply | 380V/50Hz | |
| Machine Size | | 4200*2100*2800 mm | Machine Weight | 4800 kg | |
| Total Machine Size | | 11380*5300*2800 mm | | | |

B. Main Characteristic

- 1、Continuous heating technology (Preform feeding, Bottle discharge, Rotor revolves are not stop). In this case, the heating deviation of the lamp can be ignored, same heating environments and absorbed heating for each preform. Keep the bottle in good quality.
- 2、保证加温时采用短节距 (55mm)，吹瓶时采用大节距 72mm.Keep the short pitch 55mm while heating and 72mm pitch while blowing.
- 3、采用快速换模装置 (装拆模具是左右模及底模连在一起)，加快换模速度及降低工人劳动强度 Use quick mold changer (assemble and disassemble the left, right and bottom mold in the same time), speed up the mold changing and reduce the labor intensity of the workers.



C:Spare Part List/set (just for reference)

| No. | Specification | Name | Qty. | Remark |
|-----|---------------|--------------------------------|-------|------------------|
| 1. | 0302A1001 | Rotor Seat | 3pcs | Assembly in set |
| 2. | 1002A1033 | Mechanical Clamps | 2set | Assembly part |
| 3. | 0902A1001 | Sealing Glue | 3pcs | glue |
| 4. | 0602A1006 | Lamp Tube L=960 380V | 5pcs | Finished product |
| 5. | 3/4*2000 | Low-pressure tube | 1pc | Finished product |
| 6. | 3/4*3/4 | Connector of low-pressure tube | 2pcs | Finished product |
| 7. | 25*2.6 | O ring | 20pcs | Finished product |
| 8. | EPC6-02 | Quick connection | 5pcs | Finished product |
| 9. | EPC10-02 | Quick connection | 5pcs | Finished product |
| 10. | 8-02 | Adjusting joint | 3pcs | Finished product |
| 11. | 6-01 | Adjusting joint | 3pcs | Finished product |
| 12. | 10-02 | Adjusting joint | 3pcs | Finished product |
| 13. | 6-M5 | Adjusting elbow | 2pcs | Finished product |
| 14. | ∅ 6 | T-joint | 2pcs | Finished product |
| 15. | 1/4 | Noise silencer | 5pcs | Finished product |
| 16. | CSI-G | Magnetic Switch | 2pcs | Finished product |
| 17. | CSI-E | Magnetic Switch | 2pcs | Finished product |
| 18. | CSI-F | Magnetic Switch | 2pcs | Finished product |
| 19. | | Switch | 1pcs | Finished product |
| 20. | | Amplifier | 1pc | Finished product |
| 21. | 1P | Air-break switch | 2pcs | Finished product |
| 22. | | Proximity switch | 1pc | Finished product |
| 23. | 4V310 | Operating Valve | 1pc | Finished product |
| 24. | | Manual for machine | 1book | |
| 25. | | Manual for servo system | 1set | |
| 26. | | Manual for frequency converter | 1book | |

D: Main parts and place of origin:

| No. | Name | Brand | Origin | Remark |
|---|---------------------------|--------|--------|--------|
| Main Electronic Control System | PLC controller | LS | Korea | |
| | Servo driving system | LS | Korea | |
| | Servo transmission system | LS | Korea | |
| | Human-computer interface | LS | Korea | |
| | Heating area | SANREX | Japan | |



| | | | | |
|------------------|---|-----------------|-----------|---------------------|
| | Heating Lamps | Shangwei | Shanghai | Specifies suppliers |
| | Electric cylinder servo system for bottle out | Yiqu | | |
| | Master switch | Schneider | France | |
| | Contactora | Schneider | France | |
| | Photoelectric switch | Shanghai Labino | Shanghai | |
| | Frequency Changer | ENC | Shenzhen | |
| Pneumatic System | High-pressure valve | PARKER | America | |
| | Operating valve | AIRTAC | Taiwan | |
| | Triplet | AIRTAC | Taiwan | |
| | Stretching cylinder | Nuohua | Guangzhou | |
| | Preform-in rotary cylinder | FESTO | Germany | |
| | Preform feeding cylinder (finger) | Jinqi | Taiwan | |

VII. Wash-Fill-Seal machine

1. 综述 General

1.1 基本要求 Basic Requirement

1.1.1 设备名称 Equipment Name

塑料瓶大输液洗灌封一体机 IV Solution Plastic bottle Wash-Fill-Seal Machine

1.1.2 设备工作流程 Equipment working process

吹瓶→气洗→灌装→密封→瓶输出

Bottle (**Blowing**) → washing bottle by air→filling→sealing→bottle out feed

1.2 使用环境和能源要求 Using environment and energy required

1.2.1 空间：最小空间：

Space: Minimum space:4200mm*2100mm*2800mm (L*W*H) ;

1.2.2 环境温度

Environment tem.:15°C~35°C;

1.2.3 相对湿度

Relative humidity:30%~70%;

1.2.4 压缩空气

Compressed air pressure:7bar~8bar;



1.2.5 冷却水

Cooling water tem : $\leq 15^{\circ}\text{C}$;

1.2.6 冷却水

Cooling water pressure: 2bar~3bar;

1.2.7 灌装气动阀压缩气: $\geq 6\text{bar}$

Compressed air for filling pneumatic valve : $\geq 6\text{bar}$

1.2.8 电源

Power: 380V $\pm 10\%$, 3Phase, 50Hz 。

1.3 设备目的 Equipment purpose

1.3.1 用途: 生产 PP 瓶包装的大输液

Purpose: Production of IV solution packed by PP bottle

1.3.2 静脉输液

IV Solution

1.3.3 清洗方式: 离子风消除静电;

Cleaning method: Ionic wind for eliminating static electricity

1.3.4 灌装方式: 高位罐;

Filling method: high level tank

1.3.5 密封方式: 热熔密封。

Sealing method: hot melting sealing.

2、性能描述 Performance Description

2.1 各规格产能 Production capacity of each type

| Size | Bottles/hour |
|--------|--------------|
| 100ml | 6000b/h |
| 250ml | 6000b/h |
| 500ml | 6000b/h |
| 1000ml | 1500b/h |

以上数据基于灌装无泡产品以及提供 2.0bar~4.0bar 的液体压力进行测定。

The above data is based on filling non-bubble products and provide liquid pressure of 2.0bar ~ 4.0bar for test.

有效产量会因为操作的错误而受影响，操作的错误主要发生在启动时或由错误进料或其他外部影响而引起。因设备本身原因之外的因素造成的对生产速度的影响设备制造商不承担责任。

The effective yield will be affected because of the operation error, the operation error occurs mainly in start or feed error or other external influences. Equipment manufacturer will not responsible for production speed problem caused by other factors rather than equipment itself.

2.2 各规格灌装精度 Filling accuracy of each type

| Size | Filling error | Speed in test |
|-------|---------------|---------------|
| 100ml | 0~2g | 6000b/h |
| 250ml | 0~5g | 6000b/h |
| 500ml | 0~7g | 6000b/h |



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| | | |
|--------|-------|---------|
| 1000ml | 0~15g | 1500b/h |
|--------|-------|---------|

根据无泡产品，灌装精度会因为操作的错误而受影响，操作的错误主要发生在设定灌装参数时，由此产生的灌装超标，SHINVA 公司对此不承担责任。

According to no bubble products, filling accuracy will be affected by the operator's error . operation error occurs mainly in setting the filling parameters, the result of excessive filling, SHINVA shall not be liable.

2.3 各规格生产合格率 Production conformity rate of each type

| Size | Bottle without N ₂ gassing | |
|--------|---------------------------------------|---------------|
| | Qualified product Ratio | Speed in test |
| 100ml | 99% | 6000b/h |
| 250ml | 99% | 6000b/h |
| 500ml | 99% | 6000b/h |
| 1000ml | 99% | 1500b/h |



2. 工位描述 Station description

工位和装置清单 Station and device list

| No. | Station and Device |
|-----|------------------------------|
| 1.0 | 输送带上瓶 Bottle in feed device |
| 2.0 | 气洗工位 Air washing station |
| 3.0 | 灌装工位 Filling station |
| 4.0 | 封口工位 Sealing station |
| 5.0 | 瓶输出装置 Bottle out feed device |

3.1 上瓶装置 Bottle in feed device

- 3.1.1 采用与吹瓶机连接进瓶方式;
Bottle in feed is performed manually by about two operators;
- 3.1.2 瓶口朝下输送;
Transfer with bottle mouth upwards;

3.2 气洗工位 Air washing station

- 3.2.1 此工位对瓶壁内表面进行清洗;
Inner side of the bottle is washed by air flow in this station
- 3.2.2 使用高压离子风形式进行清洗;
Clean with high-pressure ion wind;
- 3.2.3 瓶口朝下进行清洗;
Clean with bottle mouth downwards;
- 3.2.4 自带废气收集装置, 自动抽走废气;
Provision of waste gas collection device, to pump out waste automatically
- 3.2.5 共有 28 个清洗装置;
Totally 28 washing devices
- 3.2.6 具有放电故障报警功能。
Provision of discharge fault alarm function.

3.3 灌装工位 Filling station

- 3.3.1 灌装采用时间-压力式控制, 装置由药液罐、稳压系统、控制系统、CIP 和 SIP 系统组成;
Filling controlled with time & pressure; device consists of liquid tank, pressure stabilizing system, control system, CIP and SIP system.
- 3.3.2 采用夹具夹持瓶口进行灌装;
Use gripper to fix bottle mouth for filling
- 3.3.3 采用 PLC 计时, 电磁隔膜阀控制灌装通断;
PLC timing, magnetic diaphragm valve for control of filling on-off.
- 3.3.4 药液罐中设有液位稳定系统, 使液位罐液体体积保持相对固定;
Provision of liquid level stabilization system in liquid tank, to maintain level within proper range.
- 3.3.5 具备无瓶不灌装功能;
No filling to be performed in case of no bottles.
- 3.3.6 设备自带 CIP 和 SIP 功能。



Provision of CIP and SIP function.

- 3.3.7 共有 18 个灌装工位。
18 filling stations in total

3.4 封口工位 Sealing station

- 3.4.1 此工位是通过瓶口和密封盖进行加热熔化焊接，实现密封；
The bottle mouth and sealing cover in this station is welded through heating and melting;
- 3.4.2 由 1 个的振动理料器对密封盖进行整理；
One vibrator is used to arrange the sealing cover;
- 3.4.3 密封盖通过滑道被输送至加热的位置；
Sealing cover is conveyed to heating place through slide rail;
- 3.4.4 光电传感器检测密封盖，缺少密封盖时设备自动报警；
Photoelectric sensor detects sealing cover, lack of sealing cover equipment will alarm automatically;
- 3.4.5 具有无瓶不焊盖功能。
No capping to be performed in case of no bottles.
- 3.4.6 共有 18 个封口工位。
18 sealing stations in total.

3.5 瓶输出装置 Bottle out feed device

- 3.5.1 将灌装和密封好的瓶子从灌装工位上取下并放置在输送机上；
Remove the filled and sealed bottles from the filling station and placed on the conveyor;
- 3.5.2 输送机为链板式，由减速电机驱动个，可变频调速；
Conveyor is chain plate type, driven by a gear motor, speed can be adjusted through frequency control

3.6 控制系统 Control system

- 3.6.1 由一个电气箱和一个控制面板组成；
Composed of one electrical cabinet and one control panel;
- 3.6.2 电气箱箱体和门材质为 SS 304；
The material of body of electrical cabinet and door is SS 304;
- 3.6.3 电气箱的防护等级为：IP54；
The protection grade of electrical cabinet: IP54;
- 3.6.4 电气箱内有照明装置；
Electrical cabinet inside have lighting device;
- 3.6.5 PLC: SIEMENS S7-200;
- 3.6.6 HMI: SIEMENS ;
- 3.6.7 与生产紧密相连的参数如焊接温度、焊接时间和等数据均可在触摸屏上进行显示、设置和修改；
Parameters closely linked with production, such as welding temperature, soldering time and other data can be displayed, set and modify on the touch screen;
- 3.6.8 当设备运行过程中出现操作错误和故障时，设备具有自动停机和报警功能，并且将错误位置显示在触摸屏上；
When occur operating errors and failures during operation, the device has an automatic shutdown and alarm functions, and the error location is displayed on the touch screen



- 3.6.10 触摸屏可对合格品进行计数;
The touch screen can count qualified products
- 3.6.11 备参数程序控制操作设置三级密码保护, 可在人机界面进行设置;
Device parameters program control operation set three levels of password protection, set in the HMI;
- 3.6.12 用户可将不同种类的灌装介质的参数存储在 HMI 中, 可以直接调用;
Users can store different types of filling medium parameters in the HMI, you can directly invocation;
- 3.6.13 用户可将焊接经验值存储在 HMI 中, 可以直接调用;
User can store the welding experience value in the HMI, you can directly invocation;
- 3.6.14 设备配备 1 个急停开关, 分别位于机器前端电器柜和机器后端的框架上;
The device is equipped with an emergency stop switch, are located at the front of the electrical cabinet and the back of the machine frame;
- 3.6.15 设备配备 1 个报警灯。
The equipment is equipped with one alarm light.