



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



6000BPH PP LARGE INFUSION BOTTLE PROJECT
INJECTION MOLD (56 BOTTLE PREFORMS PER
INJECTION) BOTTLE PREFORMS TRANSPORTATION
REFLUX

6000B/h (大输液) 方案书

注坯模 1 出 56

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)	56cav. (9g)	1set	\$110295	\$110295	坯环一体 Bottle preform and bottle ring integrated
	2-2	注塑模具 Mold 2 (250ml)	56cav. (12g)	1set	\$110295	\$110295	坯环一体 Bottle preform and bottle ring integrated
	2-3	注塑模具 Mold 3 (500ml)	56cav. (16g)	1set	\$110295	\$110295	坯环一体 Bottle preform and bottle ring integrated
	2-4	注塑模具 Mold 4 (1000ml)	24cav. (27g)	1set	\$63530	\$63530	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	56Cav. (17g)	1set	\$1471	\$1471	
	2-7	机械手夹具 2 Preform pickup shelf 2	56Cav. (12g)	1set	\$1471	\$1471	
	2-8	机械手夹具 3 Preform pickup shelf 3	24Cav. (26g)	1set	\$1471	\$1471	
	2-9	机械手夹具 4 Preform pickup shelf 4	56Cav. (9g)	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-06-28-18-18		1set	\$264706	\$264706	Capacity:6000 BPH(500ml) 1500BPH(1000 ml)
	4-2	吹瓶模具 Blowing Mold (500ML)	6Cav.	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)	3Cav.	1set	\$5295	\$5295	
	4-8	吹瓶模具 Blowing Mold (100ML)	6Cav.	1set	\$5295	\$5295	
	4-9	吹瓶模具 Blowing Mold (250ML)	6Cav.	1set	\$5295	\$5295	
	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						\$885893	



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出厂价 Total EXW Price	Eight Hundred and Eighty-Five Thousand Eight Hundred and Ninety-Three 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:



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



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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



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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

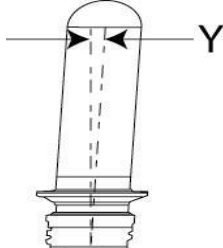
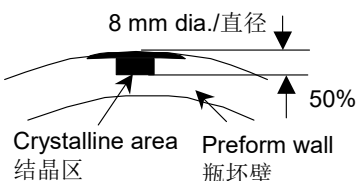
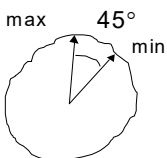
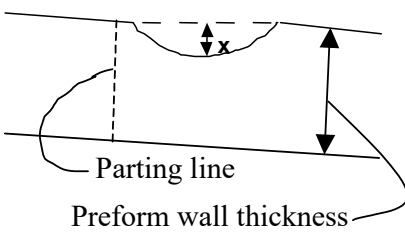
Preform Specifications/瓶坯规格

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>

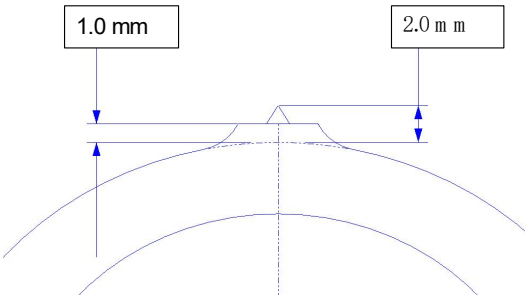


Attribute/品质	Specification/规格																
2) Thread dimensions inspected/螺纹直径检查	Standard dimensions inspected are as per the drawing shown 标准直径检查如图 																
3) Individual preform weight variation from nominal 单独的瓶坯重量与名义重量的差异	Nominal weight/设计重量	Tolerance/公差															
	Less than 20g/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
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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.