



SHENZHEN CHANGHONG TECHLOGY CO., LTD

深圳市昌红科技股份有限公司

E2G 项目 Line29 自动线 FAT

Automation line 29 FAT of E2G Project

# 目录

1. 概要 Outline.....	1
1.1 设备简介 Brief Introduction of Equipment.....	1
1.2 设备描述 Description of Equipment.....	1
1.3 测试参照标准 Test reference standard.....	2
1.4 先决条件 condition precedent.....	2
2. 目的 Purpose.....	3
3. 范围 Scope.....	3
3.1 测试范围 testing range.....	3
3.2 设备模组列表 list of module device.....	4
4. 依据 Reference.....	5
5. 职责 Responsibility.....	5
6. 偏差及变更 Change and Deviation.....	5
7. 整机检测 Test of the overall unit.....	6
8. 模组测试 Module test.....	9
9. 结论 Conclusion.....	14



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## 1、概要 Outline

### 1. 1 设备简介 Brief Introduction of Equipment

设备由以下工位构成:

The equipment is consist of the following stations:

1. tip 和主臂机械手对接工位、tip 变距工位、CCD 检测工位、NG 分选剔除工位、  
补料工位、装盒工位、满盒检测工位

Tip and main robot docking station、tip variable pitch station、CCD check station、NG  
sorting out station、the loading station、replenishment station、full box detection  
station

2. cup 和主臂机械手对接工位、cup 变距工位、CCD 检测工位、NG 分选剔除工位、  
补料工位、装盒工位、满盒检测工位

Cup and main robot docking station、cup variable pitch station、CCD check station、  
NG sorting out station、the loading station、replenishment station、full box detection  
station

3. 底盒和主臂机械手对接工位、CCD 检测工位、NG 分选剔除工位

Rack and main robot docking station、CCD check station、NG sorting out station.

4. 底盒打码工位，底盒扫码工位、放盒工位、包装封膜工位

Bottom box coding station, bottom box scanning station, box stacking station,  
packaging and film sealing station

### 1. 2 设备描述 Description of Equipment

该设备主要对 E2G 组件中 3 个产品 Tip、Cup、底盒进行组装，并对产品进行尺寸检测；  
NG 产品分类放入收集区；同时产品进行补数，最终打码包装出货。

The equipment mainly assembles three products, tip, cup and rack in E2G components. And  
inspections the products size; NG products are classified into the collection area; at the same time,  
the products are supplemented, and finally coded, packaged and shipped.

### 1. 3 测试参照标准 Test reference standard

1. 3. 1 标准&法规：整个设备的设计、制造、材料、所有部件的供应以及配置基于并且符  
合以下标准：符合 GB 12266-90 《机械加工设备一般安全要求》。

1.3.1 Standards & Regulations: The design, manufacture, materials, supply and configuration  
of all components of the whole equipment are based on and comply with the following standards:  
Comply with GB 12266-90 《General Safety Requirements for Machining Equipment》 .



1. 3. 2 合同规定和双方约定的相关技术文件。

1. 3. 2 Relevant technical documents stipulated in the contract and agreed by both parties.

## 1. 4 先决条件 Prerequisites

1. 4. 1 在进行/执行测试之前，设备已经竣工。

1. 4. 1 The equipment shall be completed before the test is executed.

1. 4. 2 测试系统执行应该是安全的。

1. 4. 2 Test system execution should be safe.

1. 4. 3 在进行/执行测试之前，双方应对测试方案和内容达成共识。

1. 4. 3 Before conducting/executing the test, both parties should reach a consensus on the test plan and content.

## 2. 目的 Purpose

通过一系列实验性的测试证明该设备的可靠性，各项指标达到我司客户验收标准，设备可以交付。

Through a series of experimental tests to prove the reliability of the equipment, all indicators meet the acceptance standards of our customers, and the equipment can be delivered.

## 3. 范围 Scope

### 3. 1 测试范围 testing range

本次测试项目主要包括：相关文件检查、设备及部件检查、设备组件安装检查、主机运转测试等。

The test items mainly include: related document inspection, equipment and component inspection, equipment component installation inspection, and operation test of host, etc.

### 3. 2 设备模组列表

序号	模组组合	模组名称
1	Tip 工位组合 Tip station combination	tip 和主臂机械手对接工位 Tip and main robot docking station
2		tip 副臂取料工位 Tip variable pitch station
3		CCD 检测工位 CCD check station
4		NG 分选剔除工位 NG sorting out station
5		补料工位 Replenishment station

6		满料检测工位 Full material detection station
7	Cup 工位组合 Cup station combination	cup 和主臂机械手对接工位 Cup and main robot docking station
8		cup 变距工位 Cup variable pitch station
9		CCD 检测工位 CCD check station
10		NG 分选剔除工位 NG sorting out station
11		补料工位 Replenishment station
12		满料检测工位 Full material detection station
13	盒子工位组合 Rack station combination	底盒和主臂机械手对接工位 Rack and main robot docking station
14		CCD 检测工位 CCD check station
15		NG 分选剔除工位 NG sorting out station
16		喷码及检测工位 Coding and detection station
17	包装工位组合 Packing station combination	满料检测工位 Full material detection station
18		6 盒叠料工位 6 rack stacking station
19		包装膜上料工位 Packaging film feeding station
20		包装工位 Packing station
21		喷码检测工位 Coding detection station

#### 4. 依据 Reference

用户需求文件、设备图纸和相关技术要求; 《机械加工设备一般安全要求》  
 User requirement documents、 equipment drawings and related technical requirements; GB 12266-90 《General Safety Requirements for Mechanical Processing Equipment》

#### 5. 职责 Responsibility

公司 Company	职责 Responsibility
深圳市昌红科技股份有限公司 ( CHT ) Shenzhen Changhong Technology Co., Ltd	<p>FAT 方案的编制、审核及预批准  <b>FAT Protocol preparation, review and pre-approval</b></p> <p>执行 FAT 方案  <b>Implement this FAT protocol</b></p> <p>如果出现偏差, 与客户授权的人员进行协调  <b>Communicate to authorized Client personnel, if deviations are present</b></p> <p>记录及处理 FAT 过程中发生的偏差  <b>Record and deal with non-conformity/ deviation occurred during FAT</b></p> <p>尾项关闭  <b>Final report compilation</b></p> <p>最终报告的编写</p>
深圳市柏明胜医疗器械有限公司 (BMS) Shenzhen Boomingshining Medical Device Co., Ltd.	<p>执行前审核和批准本方案  <b>Review and approval of this protocol before execution</b></p> <p>见证并确认所有测试按照已定义的程序执行  <b>Witness the tests and ensure the procedure is followed</b></p> <p>协同收集原始数据并填写相关表格  <b>Assistant to collect raw data and fill in relevant check table</b></p> <p>协同记录和处理 FAT 过程中发生的偏差  <b>Assistant to record and deal with the deviation occurred during FAT</b></p> <p>审核和批准最终报告  <b>Review and approve the test reports after successful execution</b></p>



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## 6. 偏差及变更 Change and Deviation

现场测试中出现的技术问题的处理原则:双方协商解决,变更要得到客户技术人员的认可。当出现和草案不符的项目时,验证执行人应详细记录(后附不符合项目纪录及处理结果纪录表单模板)。

The principle of dealing with technical problems in the field test: both parties should negotiate to solve, and the changes must be approved by the customer's technical staff.

When there is an item that does not conform to the draft, the verification executor should record it in detail (the form template for the non-conforming item record and processing result record is attached).

## 7. 整机检测 Test of the overall unit

序号	测试内容 Test content	是否合格 Qualified or not	备注 remark
1	工作气压 0.5~0.8Mpa Working pressure 0.5~0.8Mpa	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
2	单相交流 220V±10% 50Hz Single-phase AC 220V±10% 50Hz	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
3	控制回路电压: DC24V Control loop voltage:DC24V	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
4	加工件零件不能有毛刺, 安全隐患的部位必须加保护盖 Workpiece parts must not have burrs, and the parts with safety hazards must be covered with protective covers	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
5	面板所有能被操作的按钮, 开关要有明确的指示标牌, 并固定 All buttons and switches on the panel that can be operated must have clear indication signs and be fixed.	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
6	触摸屏的安装位置合适, 便于操作及操作者观察设备运行情况 The installation position of the touch screen is suitable, which is convenient for operation and the operator to observe the operation of the equipment	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

7	急停按钮采用红色蘑菇头自锁按钮，连接常闭点 The emergency stop button adopts a red mushroom head self-locking button, which is connected to the normally closed point	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
8	手动模式能够单独控制运动的动作，并需要有对应的点动开关 Manual mode can control the action of the movement alone, and requires a corresponding toggle switch	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
9	整机 I/O 监督画面 Machine I/O Supervision Screen	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
10	具有计数功能，统计显示生产总数和不良品数 With counting function, statistics display the total number of production and the number of defective products	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
11	任何原因造成的机器暂停，都要在触摸屏上显示暂停或故障信息 If the machine is paused for any reason, the pause or fault message should be displayed on the touch screen	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
12	设备自动运行时，在任何位置，按暂停键设备停止后，都能用切换为手动操作恢复到初始状态，并继续自动运行 When the device is running automatically, at any position, after pressing the pause button, the device can be switched to manual operation to restore to the initial state and continue to run automatically.	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
13	整机有漏电短路保护开关，动作漏电电流≤30mA，控制盘控制电压 DC24V The whole machine has a leakage short circuit protection switch, operation leakage current ≤30mA, control panel control voltage DC24V	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
14	机器设置三色警示灯和蜂鸣器 The machine is set with three-color warning light and buzzer	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
15	警告和危险标签必须清晰可见 Warning and danger labels must be clearly visible	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



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16	所有电线、气管须做好标记，便于快速在电气原理图上查找  All wires and air pipes must be marked so that they can be quickly found on the electrical schematic	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
17	线须全封闭（部分进出料尽可能减少敞口）和空气净化装置  The line must be fully enclosed (part of the incoming and outgoing materials should minimize exposure) and air purification devices	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
18	先采用真空泵方式，有护罩隔离，真空泵需静音、无油，不得污染环境  First adopt vacuum pump, with shield isolation,vacuum pump must be silent,no oil,no pollution to the environment.	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
19	检测时使用动静法，产品检测时不能有本身晃动和周边振动干扰  The dynamic and static method is used for detection, and the product cannot be disturbed by its own shaking and surrounding vibration during detection.	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
20	四面活动安全门带电气互锁：在自动模式运行，有安全门打开，机器自动停止；安全门再次完全关闭，机器自动运行；供料过程不暂停  Four-sided movable safety door with electrical interlock: running in automatic mode,the safety door is opened, the machine stops automatically;the safety door is completely closed again, the machine runs automatically; the feeding process does not pause	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
21	不锈钢钢牌号：SUS316L, 45# 镀硬铬镀层硬度 HV850  Stainless steel grade:SUS316L,45# hard chrome plating hardness HV850	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
22	螺丝（杯头竖纹）、螺母、平垫片、弹簧垫片材质为 SUS304  Screws (cup head vertical stripes), nuts, flat washers, spring washers are made of SUS304	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
23	符合《E2G 项目自动线技术协议》自动线通用要求中机械结构工艺要求  Comply with the mechanical structure and process requirements in the general requirements for automatic lines in the 《E2G Project Automatic Line Technology Agreement》	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
24	符合《E2G 项目自动线技术协议》自动线通用要求中品牌要求	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	

	Comply with the brand requirements in the general requirements for automatic lines in the 《E2G Project Automatic Line Technology Agreement》	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
25	符合《E2G 项目自动线技术协议》自动线通用要求 中外观要求 Comply with the appearance requirements in the general requirements for automatic lines in the 《E2G Project Automatic Line Technology Agreement》	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

## 8. 模组测试 Module test

工位名称 Station name	检测名称 Detection name	是否合格 Qualified or not	备注 Remark
Tip 副 臂 取 料  Tip auxiliary jib material picking	取料副臂机械手须要有取出治具残料检测 The reclaiming jib manipulator needs to have the detection of the residual material of the take-out fixture	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	机构刚性足够 (手推无晃动) Sufficient rigidity of the mechanism (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	便于维护 easy maintenance	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	符合人机安全 Human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线合理 Reasonable routing	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Tip 变 距	机构刚性足够 (手推无晃动) The rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



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和 中 转  Pitch change and transfer	便于维护  easy maintenance	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	符合人机安全  Human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线合理  Reasonable routing	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Tip  CCD 检 测  Tip CCD detection	机构刚性足够 (手推无晃动)  Sufficient rigidity of the mechanism (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	便于维护  easy maintenance	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全  Whether it is in line with human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线合理 (含 CCD 固定)  Reasonable wiring (including CCD fixed)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	外观检测需要深度学习功能  Appearance detection requires deep learning capabilities	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	NG 分选  剔除  补料  工位  NG sorting and rejecting material packing station	有快速定位功能  quick positioning function	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		有取料确认检测  There is a reclaiming confirmation test	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		机构刚性足够 (手推无晃动)  Mechanical rigidity is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>



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	The rigidity of the mechanism is sufficient (no shaking when pushed by hand)  便于维护 easy maintenance	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
		是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	符合人机安全 Human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
CUP 副 臂 取 料 CUP jib reclaimer	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
	走线合理 Reasonable wiring	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	行程是否足够，和主臂对接是否安全 mileage sufficient, is there any risk in docking with the main boom?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	取料副臂机械手须要有取出治具残料检测 The reclaiming jib manipulator needs to have the detection of the residual material of the take-out fixture	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	机构刚性是否足够 (手推无晃动) Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护 Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全 Whether it is in line with human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理 Is the routing reasonable?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
CUP 变	是否有快速定位功能 Is there a quick positioning function	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	

距 和 中 转  Pitch change and transfer		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	机构刚性是否足够（手推无晃动）  Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护  Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全  Whether it conforms to man-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理  Is the routing reasonable?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
CUP  CCD  检测  CUP CCD  detection	机构刚性是否足够（手推无晃动）  Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护  Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全  Whether it conforms to man-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理  Is the routing reasonable?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	外观检测需要深度学习功能  Appearance detection requires deep learning capabilities	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
NG 分选  剔除  补料	是否有快速定位功能  Is there a quick positioning function	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



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工位 NG sorting and rejecting material packing station	是否有取料确认检测 Whether there is a reclaiming confirmation test	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	机构刚性是否足够 (手推无晃动) Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护 Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全 Whether it conforms to man-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理 Is the routing reasonable?(including CCD fixed)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
盒子 副臂 取料 Box jib reclaimer	行程是否足够, 和主臂对接是否有风险 mileage sufficient, is there any risk in docking with the main boom?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否有取料确认检测 Whether there is a reclaiming confirmation test	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	机构刚性是否足够 (手推无晃动) Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护 Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全 Whether it is in line with human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>	



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	Is the routing reasonable?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
盒子 CCD 检测 Box CCD detection	机构刚性是否足够 (手推无晃动)  Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护  Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全  Whether it is in line with human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理  Is the routing reasonable?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
叠 盒 工 位 stacking station	机构刚性是否足够 (手推无晃动)  Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护  Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全  Whether it is in line with human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理  Is the routing reasonable?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否有 6 盒叠满检测功能  Is there a 6-box stack full detection function?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
包 装 工	是否有快速定位功能  Is there a quick positioning function	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/>  Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



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位 Packing station	机构刚性是否足够（手推无晃动） Whether the rigidity of the mechanism is sufficient (no shaking when pushed by hand)	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否便于维护 Is it easy to maintain	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	是否符合人机安全 Whether it is in line with human-machine safety	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	走线是否合理 Is the routing reasonable?	是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

## 9. 结论 Conclusion

整线符合技术要求。整机可以联动，但是效果需要继续优化，CCD 也要继续优化。目前整线无重大修改项，符合移机的前的性能指标。

The whole line meets the technical requirements. The whole machine has been linked, but the effect needs to continue to be optimized, and the CCD should be also continue to optimize. At present, the whole line has no major modification items, which is in line with the performance indicators before the transfer.

以下的签名表明 FAT 测试已经完成。

The signatures below indicate that the FAT has been completed.

签名 Signatures		
职 务 Role	签 名 Signature	日 期 Date
调试&验证工程师 Commissioning & Validation Engineer	Chengzhi Wu	2022.09.26
项目工程师 Project Engineer	刘宇义	2022.09.26
项目经理 Project Manager	Neil Yang	2022.09.26