**后部出风口面板半自动装卡扣工装**

**REAR END MODULE Semi-automatic snap-on tooling**



项目名称：D50

Project Name: D50

编制部门：制造工程部

Preparation Department: Manufacturing Engineering Department

编制日期Preparation Date：2025.06.10

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# **一、**技术规范概述

# 1. Technical specification overview

1. 甲方提供产品的3D数模、技术文件及标准。

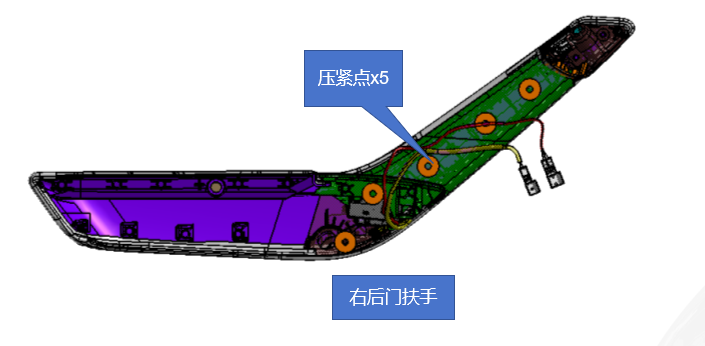
3D digital models, technical documents and standards of the products provided by the Party A.

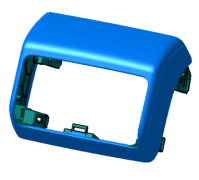
2.项目数据Project data:

1) 项目名称Project name:：D50

1. 产品名称Product name：REAR END MODULE
2. 产品量纲Product quantity：1.15W/a month
3. 产品示意Product indication：

REAR END MOUDLE





产品示意图 Product diagram

1. T0时间Time：2025/09/15

7) 最终安装及生产地点：墨西哥新泉

The final installation and production site:

Mexico Xinquan

3. 甲方项目责任人及联系方式 Party A's project manager and contact information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 项目经理  Project manager | 联系方式  Contact information | 邮箱  Email | 工艺负责  Process responsibility | 联系方式  Contact information | 邮箱  Email |
|  |  |  |  |  |  |

4.乙方项目责任人及联系方式 Party B's project manager and contact information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 项目经理  Project manager | 联系方式  Contact information | 邮箱  Email | 工艺负责  Process responsibility | 联系方式  Contact information | 邮箱  Email |
|  |  |  |  |  |  |

5.除特殊外购件外，全部采用公制标准。

Except for special purchased parts, all use metric standards.

6.乙方优先考虑与甲方的数据信息相容的软件，乙方提供的3D数据优先为STP格式。

Party B shall give priority to software that is compatible with Party A's data information, the 3D data provided by Party B shall be preferentially in STP format.

7.乙方提供的胎具数据，坐标系应与甲方产品坐标系一致，并体现三坐标测量点。

The coordinate system of mould data provided by Party B shall be consistent with that of Party A's product, and embody three coordinate measuring points.

# 二、前期开发

# 2. Early development

1. 乙方须在合同签订时向甲方提供完整项目开发进度计划方案，可行性报告以及报价，经甲方评审后，双方确认后严格执行。

Party B shall provide Party A with the complete project development schedule plan, feasibility report and quotation upon signing the Contract. After Party A's review, both parties confirm and strictly implement.

1. 乙方加工制造前需取得甲方以邮件形式确认设计方案，否则一切损失均由乙方自行承担。

Party B shall obtain Party A's confirmation of the design plan by email before processing and manufacturing; otherwise, all losses shall be borne by Party B.

1. 乙方应安排专人担当此项目的项目经理，除非甲方要求，乙方不得更换。

Party B shall arrange a special person to act as the project manager of the project, and shall not replace it unless required by Party A.

1. 胎具设计完全由乙方负责，并对甲方数据不合理处提出更改建议。

Party B shall be solely responsible for the design of the mould, and put forward change suggestions to Party A's unreasonable data.

1. 乙方在收到完整的产品数模后4周内将全套胎具的3D数据交甲方作胎具方案的确认。

Party B shall, within 4 weeks after receiving the complete product digital model, submit the 3D data of the full set of mould to Party A for confirmation of the mould scheme.

1. 非甲方重大产品结构变更，乙方不得另外收取更改费用。

If Party A does not make major product structure changes, Party B shall not charge additional change fees.

1. 乙方在获得必要的产品信息条件下，提前对其产品数据进行分析，针对各项分析结果完善胎具的设计结构，最终完成胎具的设计方案，并在甲方规定的时间段内提交至甲方进行方案评审。

Party B shall analyze its product data in advance on the condition that it obtains the necessary product information. According to the analysis results, improve the design structure of the mould, and finally complete the design scheme of the mould, and submit the proposal to Party A for review within the time period specified by Party A.

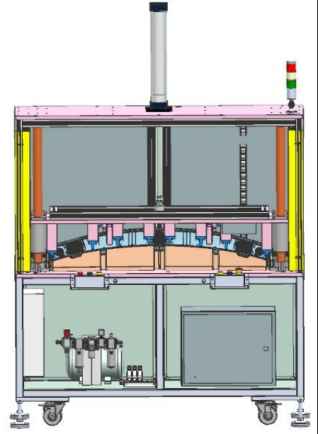
# **三、**开发技术要求

# 3. Technical requirements

供货范围说明：

1. 半自动装卡扣设备：1套

Semi-automatic snap-on equipment: 1 set



需求说明：

1. 设备参考尺寸（mm）：长1200\*宽800\*高2100，台面高750，单侧工位生产；

Reference dimensions of the equipment (mm) : Length 1200\* width 800\* height 2100, table height 750, single-sided workstation production;

1. 设备为半自动压合卡扣工装；

The equipment is a semi-automatic clamping fixture.

1. 设备卡扣半自动压合运行节拍≤15S，不含取放件时间；

The semi-automatic pressing operation cycle of the equipment's snap fasteners is ≤15 seconds, excluding the time for taking and placing parts.

1. 运行逻辑：

a、员工将产品放入压合工装下模；

b、员工放卡扣至半自动压合上模，并检测有无漏放；

c、员工按下按钮，设备压合卡扣；

d、压合到位后，气缸退回原位；

Operating Logic:

A.Employee a places the back plate into the lower die of the pressing fixture.

B. Employees place the clips onto the semi-automatic pressing upper die and check if there is any missed placement.

C. Employee A presses the button, and the device presses the snap.

D. After the pressing is in place, the cylinder returns to its original position.

1. 设备配置状态灯，可显示各种状态信息（产品缺料、光栅安全报警、气缸到位报警等）以及复位报警；配置报警灯，安装于设备顶部，设备发生异常时有声光报警；

The equipment is equipped with status lights that can display various status information (such as product shortage, grating safety alarm, cylinder position alarm, etc.) as well as reset alarm. Configure alarm lights and install them on the top of the equipment. When the equipment malfunctions, it will trigger audible and visual alarms.

1. 设备接线（包括电源线、网线等）均需满足快速插拔，方便设备移机；

The wiring of the equipment (including power cords, network cables, etc.) must all be capable of quick plugging and unplugging to facilitate the relocation of the equipment.

1. 设备需要配有脚杯，可放置在桌面上；两侧有把手，方便搬运；

The equipment needs to be equipped with foot cups and can be placed on the desktop. There are handles on both sides for convenient transportation.

1. 需提供该设备系统程序的二次开发代码。

The secondary development code of the system program of this equipment needs to be provided.

1. 设备框架由铝型材、冷轧钢板组合形成框架，机架台面采用铝型材制作，台面四周加封板；；

The equipment frame is formed by combining aluminum profiles and cold-rolled steel plates. The table surface of the frame is made of aluminum profiles, and sealing plates are added around the table surface.

1. 设备框架满足刚度和强度要求，在生产中不会变形，机架要稳固，生产时工装不产生抖动；

The equipment frame meets the requirements of rigidity and strength, will not deform during production, the frame should be stable, and the tooling should not shake during production.

1. 框架前端向内凹陷处安装一盏LED照明灯，光照度满足800~1000LUX，方便在任意使用场景满足照明需求；

An LED lighting lamp is installed in the concave part at the front end of the frame, with an illuminance of 800 to 1000LUX, which is convenient to meet the lighting requirements in any usage scenario.

1. 电控柜统一布置在工装台底部，封板开孔，注意散热（必要时安装排风扇）；

The electrical control cabinets are uniformly arranged at the bottom of the tooling table, with holes drilled in the sealing plate. Attention should be paid to heat dissipation (exhaust fans should be installed if necessary).

1. 设备框架需喷涂（铝型材、不锈钢保持原色），颜色RAL7035，所有零配件需要做防锈处理，防止零配件生锈；设备名称蓝色喷字；

The equipment frame needs to be sprayed (the aluminum profiles and stainless steel should maintain their original colors), with the color being RAL7035. All spare parts need to undergo anti-rust treatment to prevent rusting. The name of the equipment is printed in blue.

1. 符合人机工程学原理，下台面取、放件高度符合人机操作便利要求（台面离地约750mm，操作中心离地约900mm），降低操作劳动强度。

In line with ergonomic principles, the height for taking and placing items on the lower surface meets the requirements of convenient human-machine operation (the table surface is approximately 750mm from the ground, and the operation center is approximately 900mm from the ground), reducing the labor intensity of operation

1. 胎具要求采用POM材料，要求不能划伤产品，可外附贴毛毡防护；

The fetus is required to be made of POM material and must not scratch the product. Felt can be attached externally for protection.

1. 工装胎具可快换，方便后期新项目的兼容及改造；

The tooling fixtures can be quickly changed, facilitating compatibility and transformation for new projects in the later stage;

1. 底膜胎块才用分体形式，支持微调；

The base membrane block is in a split form and supports fine-tuning.

1. 胎具尺寸需要与产品匹配，保证产品固定后无变形扭曲，重复定位精度+/-0.2mm；

The size of the tire needs to be matched with the product to ensure that the product is fixed without deformation and distortion, repeatable positioning accuracy of +/-0.2mm.

1. 转轴装配定位机构要求精准，保证转轴在安装过程中的平稳运行；

The assembly positioning mechanism of the rotating shaft requires precision to ensure the smooth operation of the rotating shaft during the installation process.;

1. 夹具和气缸缸需加强定位牢固度，不能产生松动现象；

The fixtures and cylinders need to be strengthened in terms of positioning firmness and must not become loose.

21.设备配置有报警灯，发生报警时有声光报警；

The equipment is equipped with alarm light, audible and visual alarm when alarm occurs;

**通用要求**

1. 电气品牌首选用SEW、西门子、欧姆龙、SMC等国际品牌，如采用次级品牌，可与新泉书面确认；

The electrical brand is preferred to SEW, Siemens, Omron, SMC and other international brands, such as the use of sub-brands, can be confirmed in writing with Xinquan;

1. 所有气动阀都应贴有明显标号；

All pneumatic valves should be labeled with obvious labels;

1. 所有气路必须要有号码标注；

All gas paths must be marked with numbers;

1. 外露气管应用缠绕带包裹或用蛇皮管穿套；

The exposed gas pipe should be wrapped with a winding tape or pierced with a snake skin tube;

1. 电路接线和气路接线都有标识并与图纸相符；

Circuit wiring and air wiring are marked and consistent with the drawings;

1. 设备、工装各自有报警复位按钮；

The equipment and tooling have alarm reset buttons respectively;

1. 设备必须安装有漏电保护开关，工装接地良好；

The equipment must be installed with a leakage protection switch, and the equipment is well grounded;

1. 系统的PLC可控制整个动作过程、出错报警等功能；

The PLC of the system can control the whole action process, error alarm and other functions;

1. 控制柜内配置存放设备、工装资料的储物盒；

The control cabinet is equipped with a storage box for storing equipment and tooling data;

1. PLC需预留20%的点，为将来维修改造提供空间；

PLC needs to reserve 20% points to provide space for future maintenance and renovation;

1. 电气系统中应按子系统配备足够的过载保护装置；

The electrical system should be equipped with sufficient overload protection devices according to the subsystem;

1. 系统的控制柜中配有电源的变压装置；

The control cabinet of the system is equipped with a power transformer;

1. 重载连接全部使用哈丁接头，哈丁接头规格需统一；

All heavy-duty connections use hardin joints, and the specifications of hardin joints need to be unified;

1. 连接哈丁的信号线能共享，即电源，信号控制，信号反馈均一致，触摸屏设置功能一致；

The signal line connected to Harding can be shared, that is, the power supply, signal control, signal feedback are consistent, and the touch screen setting function is consistent;

1. 机器人外露线需要加管线包，采用柔性线，防止线路缠绕，损坏；

The exposed line of the robot needs to add a pipeline package and adopt a flexible line to prevent the line from winding and damage;

1. 转台下的电线、气管等需要合理布置，采用柔性线，防止缠绕、损坏；

The wires and gas pipes under the turntable need to be rationally arranged and flexible wires are used to prevent entanglement and damage;

1. 重载连接全部使用哈丁接头，哈丁接头规格需统一；

All heavy-duty connections use Harding joints, and the specifications of Harding joints should be unified;

1. 工控机、电脑等安装位置需要注意密封防尘，保护电子元器件；

Industrial computer, computer and other installation positions need to pay attention to seal dust, protect electronic components;

1. 控制柜应配置散热风扇，要求电箱保持温度在20-25℃之间；若工作环境较恶劣需有过滤系统；

The control cabinet should be equipped with a cooling fan, and the electric box should keep the temperature between 20-25 ° C; If the working environment is harsh, a filtration system is required;

1. 用于产线“服务器”的工控机，至少需要10代以上的研华工控机，且需要双机热备，防止死机影响产线运行；

The industrial computer used for the "server" of the production line requires at least 10 generations of Advantech industrial computer, and requires dual hot backup to prevent crashes from affecting the operation of the production line;

1. 本设备各单元显示的文字内容均需要有中文、英文、西语三种语言，可以工人手动切换语言；

The text content displayed in each unit of the equipment needs to be in Chinese, English and Spanish three languages, workers can manually switch the language;

1. 整体结构及布局满足装配工艺要求，不得发生工件干涉，所有结构不可有尖角，避免零件被划伤等异常现象；

The overall structure and layout meet the requirements of the assembly process, shall not occur workpiece interference, all structures shall not have sharp corners, to avoid parts being scratched and other abnormal phenomena;

1. 结构间固定采用螺栓螺母，尽量设计成内陷式，如有螺杆裸露需与甲方商议；

Bolts and nuts shall be used to fix the structure, and the design shall be inward as far as possible. If there are exposed screws, it is necessary to discuss with Party A;

1. 电机齿轮等处设计防护罩，防止人员伤害；注油点有明确标注，油污不得泄漏到地板，也不得侵蚀到整体结构其他部位；

Motor gear and other places design protective cover to prevent personnel injury; The oil injection point is clearly marked, and the oil shall not leak to the floor or erode to other parts of the overall structure;

1. 动力机构运行可靠、平稳、不得有卡死或突然提速等现象；不得有异常声音、安全稳定，整体防静电；

The operation of the power mechanism is reliable and stable, and there should be no jamming or sudden acceleration. No abnormal sound, safe and stable, anti-static overall;

1. 人员操作部分的结构和辅助设计充分考虑人机工程学原理，装配所需操作要避免或最大程度减少弯腰、斜身操作、肘关节大范围的操作、身体用力前倾或向上等动作；

The structure and auxiliary design of the personnel operation part fully consider the ergonomic principle, and the operation required for assembly should avoid or minimize bending, oblique operation, large-scale operation of the elbow joint, and leaning forward or upward with body force;

1. 颜色定义，除外购件、铝型材、不锈钢等保持原色外，其余件喷漆处理，颜色RAL7035；

Color definition, in addition to the purchased parts, aluminum profiles, stainless steel, etc. to maintain the primary color, the rest of the paint treatment, color RAL7035;

1. 设备为24小时连续生产设计，正常使用情况下，所有核心系统的工作寿命不少于40000小时；

The equipment is designed for 24 hours continuous production. Under normal use, the working life of all core systems is not less than 40,000 hours.

1. 所有材料和零部件的品牌、规格、型号与方案要求相符（参考关键零部件清单页）；

The brands, specifications and models of all materials and parts are consistent with the requirements of the scheme (refer to the key parts list page);

1. 工艺布局、设备布置、总装配图等技术文件需经双方确认，达成一致后方可投入施工；

Process layout, equipment layout, general assembly drawing and other technical documents shall be confirmed by both parties and can be put into construction after reaching an agreement;

1. 供应商在合同签订后需提供各项设备的正式图纸（2D外形三视图、3D外形效果图）以供技术认证；若制造过程中有技术改动，需双方确认后方可生效（签字确认或邮件确认，不接受口头、微信等非正式输入）；供应商制造施工应严格执行图纸、技术文件和有关规定的要求；

After signing the contract, the supplier shall provide the official drawings of the equipment (2D shape three views, 3D shape renderings) for technical certification; If there are technical changes in the manufacturing process, it can only be effective after confirmation by both parties (signature confirmation or email confirmation, oral, wechat and other informal input is not accepted); The supplier shall strictly comply with the requirements of drawings, technical documents and relevant regulations in manufacturing and construction;

1. 甲方在供应商制造过程中对制造质量进行中间检查，设备出厂前到供应商处进行预验收；

Party A shall conduct an intermediate inspection of the manufacturing quality during the manufacturing process of the supplier and conduct pre-acceptance inspection at the supplier's place before the equipment leaves the factory;

1. 供应商提供的设备必须运转正常、安全可靠、外观美化、色调和谐；

The equipment provided by the supplier must be in normal operation, safe and reliable, beautified in appearance and harmonious in tone;

1. 质保期限以合同签订为准；售后服务24小时现场响应，30分钟内远程响应，包括节假日；供应商交付后需提供现场一周的机械、电气维护免费培训；

The warranty period shall be subject to the contract signing; After-sales service 24 hours on-site response, 30 minutes remote response, including holidays; After delivery, the supplier shall provide one week of on-site mechanical and electrical maintenance free training;

1. 供应商需要满足海外安装、调试，海外安装及初调完成时间应＜30天，供应商自行核算支持人员数量；产线在安装、调试完成后，需要安排现场2名现场陪产人员（电气工程师+钳工），预计3个月，确保产线顺利SOP；

The supplier shall meet the requirements of overseas installation and commissioning, and the completion time of overseas installation and initial commissioning shall be less than 30 days. The supplier shall calculate the number of support personnel by itself; After the installation and commissioning of the production line, it is necessary to arrange 2 on-site attendants (electrical engineers + fitters) for 3 months to ensure the smooth SOP of the production line.

1. 优质优价提供备品备件；对设备终身提供售后服务；质保期后，按照市场价收取服务费用；

Provide spare parts with high quality and high price; Provide life-long after-sales service for equipment; After the warranty period, the service fee shall be charged according to the market price;

1. 供应商设计完成后，应向甲方提供详细的设计图纸（2D、3D），经审核书面确认后才可开始制造；

After the design is completed, the supplier shall provide the detailed design drawings (2D, 3D) to Party A, and the manufacturing can only begin after the written confirmation of the review.

1. 交付时间以正式商务合同为准；交付延期索赔方案参考商务合同标准，如商务合同无明确规定，甲方按2000RMB/天向乙方进行索赔；

The delivery time is subject to the formal business contract; The claim scheme for delayed delivery shall refer to the standard of business contract. If there is no clear stipulation in the business contract, Party A shall claim against Party B at RMB 2000RMB/ day;

1. 预验收：合同生效后，乙方按开发进度节点以书面形式向甲方如实通报设计制造情况；设备完工后，设备、胎膜按技术要求自检无误，设备运行正常，样件试制达到品质、周期要求，设备性能满足技术要求、设备满足安全要求后，乙方方通知甲方到甲乙方场地进行设备的预验收；预验收合格双方签证确认预验收合格单，乙方组织拆卸、包装、发运，预验收不合格，甲方出具不合格项，由乙方按时间整改到位，并按时发运；

Pre-acceptance: After the contract takes effect, Party B shall truthfully inform Party A of the design and manufacturing status in writing according to the development schedule; Upon completion of the equipment, the equipment and the tire film shall be self-checked according to the technical requirements, the equipment shall operate normally, the sample production shall meet the quality and cycle requirements, the equipment performance shall meet the technical requirements and the equipment shall meet the safety requirements, Party B shall notify Party A to conduct the pre-acceptance inspection of the equipment at the venue of Party A and Party B; Both parties shall confirm the pre-acceptance certificate, Party B shall organize disassembly, packaging and delivery, if the pre-acceptance fails, Party A shall issue the non-conformity item, Party B shall rectify the failure according to time and deliver the goods on time;

1. 到厂验收：预验收合格后，设备起运到甲方，甲方人员同乙方人员一起确认到场状态和货物到货清单，确认货物无缺损和损坏后完成到厂验收，双方共同签署确认，零件到货状态、到货清单；甲方提供叉车等卸货必要设备，协助乙方进行卸货及安装；

Acceptance at the factory: After the pre-acceptance is qualified, the equipment shall be shipped to Party A, Party A's personnel and Party B's personnel shall confirm the arrival status and the arrival list of the goods, confirm that the goods are free from defects and damage, and complete the acceptance at the factory. Both parties shall jointly sign and confirm the arrival status and arrival list of the parts. Party A shall provide forklift trucks and other necessary equipment for unloading and assist Party B in unloading and installation.

1. 正式验收：设备到场后，乙方安装调试完成，进行设备试产和运行验证，无问题连续运行120h后由设备、技术、品质、生产、供应商共同会签确认验收，提交验收报告；

Formal acceptance: After installation and commissioning of the equipment on site, Party B shall conduct trial production and operation verification of the equipment. After 120h continuous operation without problems, the equipment, technology, quality, production and suppliers shall jointly sign and confirm acceptance and submit acceptance report;

1. 提供设备布局图，机械图纸，2D及3D数据（CATIA 3dxml格式、stp格式或igs格式），包含合同中所有设备，且详细到每个开关的位置；

Provide equipment layout drawings, mechanical drawings, 2D and 3D data (CATIA 3dxml format, stp format or igs format), including all equipment in the contract, and detailed to the position of each switch;

1. 提供设备基础安装图：含动力位置，动力需求（包括管道走向，连接口的尺寸）等；

Provide equipment basic installation diagram: including power position, power demand (including pipeline direction, connection port size);

1. 提供设备使用说明书：含操作说明（开机、使用、异常处理、关机等完整的带图示及文字说明的操作指导书）/安全守则/润滑原理图/电气原理图/接线图/气动原理图/关键零部件清单（名称、品牌、型号、规格、数量）；

Provide equipment instructions: including operation instructions (boot, use, abnormal handling, shutdown and other complete operation instructions with illustrations and text instructions)/safety rules/lubrication schematic/electrical schematic/wiring diagram/pneumatic schematic/list of key parts (name, brand, model, specification, quantity);

1. 提供易损件清单（备品备件清单）；

Provide a list of wearing parts (spare parts list);

1. 提供维修保养手册（常见故障排除，预防性维修保养计划）；

Provide maintenance manuals (common troubleshooting, preventive maintenance plans);

1. 提供重要零部件说明书（如电机、控制模块、PLC等）；

Provide instructions for important parts (such as motors, control modules, PLCS, etc.);

1. 提供PLC程序备份及说明；操作PLC程序说明：需指导用户可以通过所配置的对话界面，调整部分程序以设定参数；

Provide PLC program backup and description; Operation PLC program description: It is necessary to guide the user to adjust some programs to set parameters through the configured dialog interface;

# 四、制造过程控制

# 4. Manufacturing process control

1. 甲方对乙方产品的制造过程的重要节点进行监控，乙方应定期向甲方通报项目运行情况，实物照片以及更新进度表。

1. Party A shall monitor important points in the manufacturing process of Party B's product, Party B shall regularly inform Party A of the project operation status, physical photos and updated schedule.

1. 乙方应按甲方要求提供工艺记录。

2. Party B shall provide process records as required by Party A.

1. 乙方必须在加工完成后按照甲方的要求将甲方提供的所有产品技术资料及其它文件归还甲方，并且不得将甲方提供的产品技术资料或由这些资料生成的中间产品（如数控加工指令等）提供给任何第三方，否则乙方承担由此对甲方造成的所有损失。

3. Party B shall return all product technical data and other documents provided by Party A to Party A as required by Party A upon completion of the processing of the mould, and shall not provide the product technical information provided by Party A or the intermediate products generated by such information (such as CNC machining instructions, etc.) to any third party. Otherwise, Party B shall bear all the losses caused to Party A.

1. 乙方在加工制造过程中，若制作不合理或因产品质量不满足甲方要求而需要重新修改胎具，由此产生的费用及责任全部由乙方承担。

4. In the process of processing and manufacturing, if the mould is not made reasonably or the product quality does not meet Party A's requirements and the mould needs to be modified, all expenses and liabilities arising therefrom shall be borne by Party B.

# **五、**试模 Mould test

1. 乙方需在项目开发进度计划的规定时间内完成胎具的制造、安装，胎具具备T0试模能力前5日书面通知甲方，甲方邮寄产品给乙方，乙方进行配模工作。

Party B shall complete the manufacturing and installation of the mould within the time specified in the project development schedule. 5 days before the mould has the T0 test ability, Party A shall be notified in writing, and Party A shall mail the product to Party B, and Party B shall carry out the mould matching work.

2.胎具加工完成后，由乙方负责对胎具进行外观检查，确认合格后，对胎具型面及与设备的匹配尺寸进行测量，并将测量报告提交甲方确认。

After finishing the processing, Party B shall be responsible for the appearance inspection of the mould. After confirmation of acceptance, measure the mold surface and matching size with the equipment, and submit the measurement report to Party A for confirmation.

3.甲方如有样品试制需求，提前7天将需求数量和时间以及产品要求反馈给乙方，如在乙方试模，乙方须安排几台及试模人员确保试制进度和质量，如在甲方试模，需要乙方指派专业技术工程师及时到达甲方现场指导工作。在紧急情况下，需要立即试制时，乙方需尽力配合甲方，协调资源。乙方负责提供 5 次试模或 300 件符合产品质量要求的合格样件。

If Party A has the demand for sample trial production, it shall provide the required quantity, time and product requirements to Party B 7 days in advance. In case of mould testing in Party B, Party B shall arrange several sets and mould testing personnel to ensure the progress and quality of trial production. In case of mold trial in Party A, Party B shall assign professional technical engineers to arrive at Party A's site in time to guide the work. In case of emergency and immediate trial production, Party B shall do its best to cooperate with Party A and coordinate resources. Party B is responsible for providing 5 test molds or 300 qualified samples that meet product quality requirements.

4.乙方负责将试模产品发运到甲方指定地点。

Party B shall be responsible for dispatching the prototype products to the place designated by Party A.

5.在首次试模前，乙方向甲方提供胎具型面尺寸的三坐标检测报告。三坐标测量点的数量和位置，乙方需在提供的胎具数据中体现，并与甲方确认。验收过程中，若甲方发现胎具尺寸存在问题，乙方有责任再次测三坐标。

Before the first mold test, Party B shall provide Party A with the three-dimensional coordinate test report of the mold surface size. The number and location of the three-dimensional coordinate measuring points shall be reflected in the mould data provided by Party B and confirmed with Party A. In the process of acceptance, if Party A finds any problem with the size of the mould, Party B shall have the responsibility to test the three-dimensional coordinate again.

# **六、验收 Acceptance**

1. 验收分3个阶段 Acceptance is divided into 3 stages:

1) 预验收 Pre-acceptance

① 根据本协议的约定，甲方购买乙方负责开发的工装装运之前，预验收在乙方处完成，乙方必须在预验收前7日内书面通知甲方，甲乙双方均在场的情况下方可进行预验收。

In accordance with the provisions of this Agreement, before Party A purchases the tooling developed by Party B, pre-acceptance shall be completed at Party B, Party B must notify Party A in writing within 7 days prior to the pre-acceptance. The pre-acceptance can be carried out in the presence of both parties.

② 乙方必须提供由第三方权威机构检测并岀据的胎具型腔三坐标检测报告（CMM）。

Party B must provide a three-dimensional coordinate test report (CMM) of mould cavity tested and obtained by a third-party authority.

\*上述程序完成后，甲方在乙方处进行预验收并签署预验收文件。根据上述技术要求检查胎具制作的完整性，核对无误后胎具方可按甲方要求的时间发运至甲方。

\*Upon completion of the above procedures, Party A shall conduct pre-acceptance inspection at Party B's place and sign the pre-acceptance document. According to the above technical requirements, check the integrity of the production of the mould, and the mould can be dispatched to Party A at the time required by Party A after the verification is correct.

2)交付 Delivery

① 最终验收在甲方进行，乙方负责胎具与设备等的匹配性；乙方负责确保胎具结构及性能合格，并保证在甲方生产线上批量生产出合格的产品。凡是知识产权归属于甲方的图纸、信息、工艺参数、轨迹信息等，乙方必须保密。

The final acceptance shall be carried out by Party A, and Party B shall be responsible for the match between the mould equipment of Party A; Party B shall be responsible for ensuring that the structure and performance of the mould are qualified and that qualified products are mass-produced on Party A's production line. Party B shall keep confidential all drawings, information, technological parameters and trajectory information whose intellectual property rights belong to Party A.

② 设备到达甲方后5个工作日内，乙方应派遣至少1名有经验的工程师到甲方进行胎具的安装调试，胎具的最终认可验收工作在甲方进行，条件是：

1. 甲方收到本协议供货范围中规定的所购买产品。
2. 甲方收到乙方提供的所有文件（签字盖章版&电子版）包含：

Within 5 working days after the delivery of the mould to Party A, Party B shall send at least one experienced engineer to Party A to install and debug the mould. The final approval and acceptance of the mould shall be carried out by Party A under the following conditions:

A. Party A receives the purchased products specified in the Scope of Supply under this Agreement.

B. All documents (signed and sealed version & electronic version) received by Party B include:

具体见下表：See the following table for details:

|  |  |  |  |
| --- | --- | --- | --- |
| 序号  NO. | 资料名称  Data name | 数量  Quantity | 备注  Note |
| 1 | 可行性分析报告  Feasibility analysis report | 1 | 乙方提供  Provided by Party B |
| 2 | 胎具加工进度表  Mould processing schedule | 1 | 乙方提供  Provided by Party B |
| 3 | 胎具最终3D数据  Final 3D data of mould | 1 | 乙方提供  Provided by Party B |
| 4 | 胎具型面尺寸的三坐标检测报告  Three-dimensional coordinate test report of the mould size | 1 | 乙方提供  Provided by Party B |
| 5 | 总装图  General assembly drawing | 1 | 乙方提供  Provided by Party B |
| 6 | 胎具易损件明细表  Detailed list of wear parts for mould | 1 | 乙方提供  Provided by Party B |
| 7 | 胎具操作、保养说明书  Mould operation and maintenance manual | 1 | 乙方提供  Provided by Party B |
| 8 | 气动原理图  Pneumatic schematic diagram | 1 | 乙方提供  Provided by Party B |
| 9 | 电气原理图  Electrical schematic diagram | 1 | 乙方提供  Provided by Party B |

③ 首次在甲方进行交付试模至少需连续生产50套满足数模的产品。乙方免费派人进行工艺调整以及胎具维修技术指导。

At least 50 sets of products meeting the numerical model shall be produced continuously for the first time in Party A. Party B shall send personnel free of charge to carry out technological adjustment and technical guidance for mould maintenance.

④ 乙方调试人员免费对甲方操作人员进行培训，培训内容包括操作、工艺调试、设备维修保养等。

A. 培训效果：确保甲方人员能够独立完成准确操作、工艺调试、设备维护保养及日常问题处理等。

B. 胎具必须确保在甲方现有的设备上正常使用，保证与甲方设备完全匹配。

④Party B's commissioning personnel shall provide training to Party A's operators free of charge, including mould operation, process debugging, equipment maintenance, etc.

1. Training effect: Ensure that Party A's personnel can independently complete accurate operation, process debugging, equipment maintenance and daily problem solving, etc.
2. The mould must be used normally on Party A's existing equipment and fully match with Party A's equipment.

3)终验收 Final acceptance

① 针对胎具质量，在甲方验收时需要验证关键产品特性KPC包括：残厚、位置度、防错孔，以及关键控制特性KCC包括：真空、换模重复定位精度，且必须满负荷连续生产3个班次，产品的合格率达到99%（仅限于胎具的原因，不包含设备、材料、工艺条件等原因），且确认满足甲方输出的工艺要求。如不符合要求，甲方进行问题收集，乙方来进行问题修改，直至终验收完成。

For the quality of mould, Party A needs to verify key product characteristics (KPC) during acceptance, including: residual thickness, position, error hole prevention, and key control characteristics (KCC) include: vacuum, mold change, repeated positioning accuracy, and must be full load continuous production of 3 shifts, the product pass rate of 99% (It is limited to the reasons of the mould, and does not include the reasons of equipment, materials, and technological conditions, etc.), and confirm that the process requirements exported by Party A are met. If the requirements are not met, Party A shall collect the problems and Party B shall modify the problems until the final acceptance is completed.

② 乙方须全力配合甲方提高产品合格率、降低节拍、提高生产效率。

Party B shall fully cooperate with Party A to improve product qualification rate, reduce cycle time and improve production efficiency.

\*上述程序完成后，甲方认定胎具终验收合格的，甲乙双方签署《胎具终验收单》。

\*Upon completion of the above procedures, if Party A determines that the final acceptance of the mould is qualified, Party A and Party B shall sign the Final Acceptance Form of Mould.

# **七、**运输 Transport

1. 胎具在乙方完成预验收后由乙方负责将胎具发到甲方指定地点，乙方负责运输过程中所产生的全部费用。胎具、样件、备品备件等因乙方问题所产生的往返运输费用，全部由乙方负责。

After Party B completes the pre-acceptance inspection, Party B shall be responsible for delivering the mould to the place designated by Party A, and Party B shall be responsible for all expenses incurred during the transportation. Party B shall be responsible for all round-trip transportation expenses incurred by Party B in connection with the problems of the mould, samples and spare parts.

2.甲方收到胎具后，检验胎具有无损坏情况，如发现问题须在2日内通知乙方，乙方将5个工作日内派人员前来解决。

Party A shall inspect the mould for any damage after receiving it. If any problem is found, Party B shall be notified within 2 days, and Party B shall send personnel to solve it within 5 working days.

3.在检查胎具无损坏情况下，乙方按照甲方约定计划时间内派人到相关场地进行弱化轨迹调试，如果不能及时赶到，邮件沟通甲方。

Under the condition that there is no damage to the mould, Party B shall send personnel to the relevant site to debug the weakening trajectory according to the scheduled time agreed by Party A. If can not arrive in time, email to communicate with Party A.

# **八、**技术服务 Technical service

1. 厂家技术人员到厂技术支持不少于3次（包含1次胎具回厂调试，2次甲方需求），其他由于在调试过程中未发现的问题，以及在质保期内胎具本身的问题导致的技术服务不在此次数内；每次调试完成后需跟踪一个班次的生产；由于乙方物料不足或有紧急事务需要离开导致调试中断，再次调试时不计次数。

The technical personnel of the manufacturer shall go to the factory for technical support no less than 3 times (including 1 time for the debugging of the mould back to the factory, and 2 times for the needs of Party A), other technical services caused by problems not found in the debugging process and problems caused by the mould itself during the warranty period are not included in this number; Track the production of one shift after each debugging; If the debugging is interrupted due to insufficient materials or Party B needs to leave in case of emergency, the number of debugging times shall not be counted when debugging again.

1. 乙方在设计、制造过程中出现与甲方相关的技术问题，乙方需及时通知甲方，双方需以书面形式及时确认；应即时沟通、协商解决，最终方案以文字形式经双方签字后生效。当双方意见不能统一时，关于对甲方的生产布局、产品结构以及生产操作等影响的，应以甲方意见为准，甲方承担全部责任；涉及到胎具工艺、制造结构等以乙方意见为准，甲方意见作为参考，但技术结论的优劣乙方应付全部技术责任。

Party B shall promptly notify Party A of any technical problems related to Party A in the process of design and manufacturing, and both parties shall timely confirm in writing. It shall be settled through immediate communication and negotiation, and the final plan shall take effect after being signed by both parties in written form. In case of disagreement between the Parties, the opinions of Party A shall prevail and Party A shall be fully liable for any impact on Party A's production layout, product structure and production operation; Party B's opinions concerning mould process and manufacturing structure shall prevail, and Party A's opinions shall be taken as reference, but Party B shall bear all technical responsibilities for the merits of technical conclusions.

1. 乙方按照甲方提供的时间节点，编制详细的工作计划。经甲方确认后，乙方必须严格按照计划进行实施，该工作计划与本技术协议具有同等法律效力。

Party B shall prepare a detailed work plan according to the time node provided by Party A. After confirmation by Party A, Party B shall strictly implement the plan. The work plan shall have the same legal effect as this Technical Agreement.

1. 乙方胎具设计完成且评审通过后通知甲方，甲方及时安排人员进行评审，甲方胎具数据评审通过后，乙方开始铸造及加工。

Party B shall notify Party A after completing the design of the mould and passing the evaluation. Party A shall arrange personnel to conduct the evaluation in time. Party B shall start casting and processing after the data of Party A's mould passes the evaluation.

1. 甲方或乙方有关人员在对方工作期间，对方应提供工作方便。

When Party A or Party B's relevant personnel work for the other party, the other party shall provide work convenience.

1. 乙方根据制造、调试进度，提前十个工作日完成胎具预验收计划的编制（其中包括验收场地）并通过甲方认可，同时乙方还需准备好预验收所用合格设备、人员、场地、胎具等等，甲方按双方确定的时间到达乙方开展预验收工作。

Party B shall, according to the manufacturing and debugging progress, complete the preparation of the mould pre-acceptance plan (including the acceptance site) ten working days in advance and pass the approval of Party A. At the same time, Party B shall also prepare qualified equipment, personnel, sites, mould, etc. Party A shall arrive at Party B at the time determined by both parties to carry out the pre-acceptance.

1. 胎具发运甲方指定生产现场后，乙方必须派遣有经验（能解决现场问题）的胎具调试人员进行胎具调试与交付工作；乙方人员必须遵守甲方现场的各项管理规定，如有违反，乙方按公司管理规定支付违约金。

After delivery of mould to the production site designated by Party A, Party B shall dispatch experienced (able to solve on-site problems) mould debugging personnel to carry out mould debugging and delivery; Party B's personnel shall comply with Party A's on-site management regulations. In case of any violation, Party B shall pay liquidated damages according to the company's management regulations.

1. 在胎具质保期内，乙方接到甲方通知，必须明确责任人以及联系方式，并在48小时内到达现场进行售后服务，包括至少3次的胎具及弱化轨迹路径调试。

During the warranty period, Party B shall, upon receipt of the notice from Party A, specify the responsible person and contact information, and arrive at the site within 48 hours for after-sales service, including at least 3 times of debugging of the mould and weakening trajectory path.

# **九、**不可抗力 Force majeure

本技术协议及其附件在执行过程中，由于地震、台风、水灾、战争以及其它不能预见并且对其发生和后果不能防止或避免的不可抗力事故，致使直接影响本技术协议及其附件的履行或者不能按约定的条例履行时，遇有上述不可抗力事故的一方，应立即将事故情况通知对方，并应在十五天内，提供事故详情及本技术协议及其附件不能履行、或者部分不能履行、或者需要延期履行的理由的有效证明文件，此项证明文件应由事故发生地区的公证机构出具。按照事故对履行本技术协议及其附件影响的程度，由双方协商决定是否解除本技术协议及其附件，或者部分免除履行本技术协议及其附件的责任，或者延期履行本技术协议及其附件。

During the implementation of this technical Agreement and its attachments, due to earthquakes, typhoons, floods, wars and other force majeure events which cannot be foreseen and whose occurrence and consequences cannot be prevented or avoided, directly affect the performance of this Technical Agreement and its attachments or fail to perform in accordance with the agreed regulations, In case of the above-mentioned force majeure accident, the party shall immediately notify the other party of the accident. Within 15 days, it shall provide the details of the accident and valid documents proving that the Technical Agreement and its attachments cannot be performed, or cannot be performed in part, or that the performance needs to be delayed, this certification document should be issued by the notary office in the area where the accident occurred. According to the extent of the impact of the accident on the performance of this Technical agreement and its attachments, the parties shall decide through consultation whether to terminate this Technical agreement and its attachments, or partially exempt the responsibility for the performance of this Technical Agreement and its attachments, or postpone the performance of this Technical Agreement and its attachments.

# **十、**违约责任 Liability for breach

具体按照与本协议对应的商务协议的相关条款执行。

Carry out in accordance with the relevant provisions of the business agreement corresponding to this Agreement.

# **十一、**争议的解决 Dispute resolution

1. 本协议及其附件在执行过程中，如果发生争议，甲、乙双方友好协商解决，协商不成，向合同签订地的人民法院诉讼解决。

If any dispute arises during the execution of this Agreement and its attachments, the parties shall settle the dispute through friendly negotiation. If no agreement can be reached through negotiation, the dispute shall be settled in the people's court at the place where this Agreement is signed.

2.协议及其附件的生效及终止：

Entry into force and termination of the Agreement and its attachments:

1) 本协议及其附件自双方签字盖章之日起生效。

This Agreement and its attachments shall come into force upon being signed and sealed by both parties.

1. 本协议及其附件的终止不影响乙方对甲方的设备及胎具质量问题所担负义务及各项服务条款的执行，以上各项承诺在双方确认的胎具寿命期限内胎具使用寿命50（伍拾）万次持续有效。

The termination of this Agreement and its attachments shall not affect Party B's obligations regarding the quality problems of Party A's equipment and mould and the execution of the terms of service. The above commitments shall continue to be valid for the service life of the mould of 500 thousand times as confirmed by both parties.

1. 胎具质保期：终验收后12个月。

Warranty period of mould: 12 months after final acceptance.

# **十二、**其它 Other

1. 对本协议及其附件的转让及内容的更改、增减，必须经甲、乙双方同意并签署书面协议才能生效。

The transfer of this Agreement and its attachments as well as changes, additions or deletions to its contents shall take effect only after the parties agree and sign a written agreement.

1. 在开发过程中的任何问题双方都需友好协商，确保项目顺利推进，避免客户抱怨

In the process of development, both parties need to negotiate friendly to ensure the smooth progress of the project and avoid customer complaints

1. 本协议未尽事宜，甲乙双方友好协商后作为本协议的补充条款，经双方签字盖章的补充条款与本协议具有相同的法律效力。

Matters not covered herein shall be deemed as supplementary provisions hereof after friendly negotiation by both parties. The supplementary provisions signed and sealed by both parties shall have the same legal effect as this Agreement.

1. 与本合同相关的招投标文件,招标方要求和中标单位最终承诺文件是本合同不可分割的一部分,与本合同具有同等法律效力,本合同有约定的按本合同执行,本合同未约定的按招投标文件、招标方要求和中标单位最终承诺为准。

The bidding documents related to this Contract, the requirements of the tenderer and the final commitment documents of the winning unit are an integral part of this Contract and have the same legal effect as this Contract. Anything stipulated herein shall be executed in accordance with this Contract, while anything not stipulated herein shall be subject to the bidding documents, requirements of the tenderer and final commitment of the winning unit.

1. 本协议一式二份，甲方执一份，乙方执一份，经双方签字盖章后生效。

This Agreement is made in duplicate, with Party A holding one copy and Party B holding one copy. It shall come into force after being signed and sealed by both parties.

甲方：江苏新泉汽车饰件股份有限公司

Party A: Jiangsu Xinquan Automotive Trim Co.,Ltd

甲方代表签字:

Signature of Party A's representative: （盖章）(Seal)

年 月 日

Year Month Day

乙方：

Party B:

乙方代表签字:

Signature of Party B's representative: （盖章）(Seal)

年 月 日

Year Month Day