

**Finehope**

This product is customized for the customer, not for sale



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**Finehope has obtained ISO 9001 certificate continuously since 2003.**

**IATF16949 Certification:**

[China pu rigid foam building material supplier](#) Finehope passed the IATF16949 Automotive Quality Management Systems Certification in 2021. More than 50 documents guarantee the progress of new product development, the quality, delivery time and cost of trial and mass production products.

Since the cooperation between Finehope and Caterpillar in 2007, Finehope has used the automotive quality management system for the new product introduction, using the five tools of SPC, MSA, FMEA, APQP and PPAP, which have won praise from Caterpillar executives and established a long-term partnership so far.

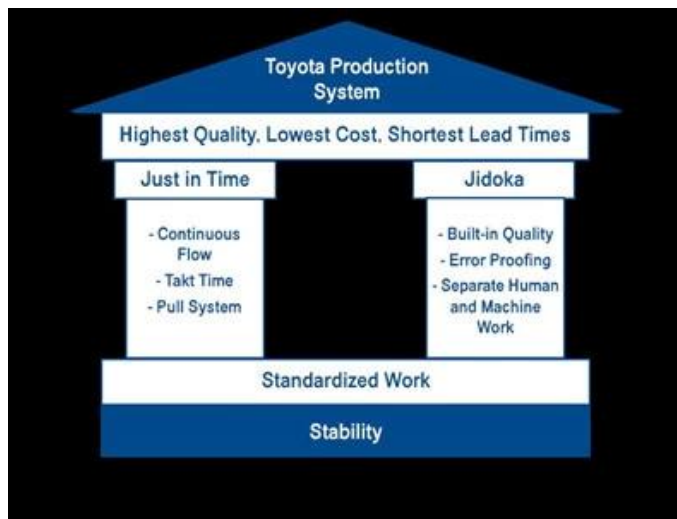
## Our Advandages



### PU raw material research and development capabilities

Since 2002, Finehope has been committed to the design and manufacture of PU moulded foam products. Independent research and development of formula materials and stable production capacity are the basis for quality assurance.

Finehope can adjust the product formula at any time according to the customized needs of customers' personalized products, such as the requirements for hardness, elasticity, support, feel, density, color and other physical and chemical properties, and can make formulation requirements in compliance with the laws and regulations of various countries. Of course, a good formula must also consider the best cost performance. For new projects, the ability to develop PU formulations is a key condition for ensuring product development quality, delivery time and cost.



### Scientific management ability

Finehope emphasizes the importance of the Toyota Production System and Corporate Coaching Model to optimize management efficiency. Continuous improvement the efficiency and quality of all employees, management and production personnel have been effectively and continuously improved, management and production costs have been continuously reduced, but more important than efficiency and cost is the cultivation of employee growth through continuous improvement, Because this is the core of corporate sustainable development.

### Automation equipment design and manufacturing capabilities

Finehope's ability to design and manufacture automation equipment is rare in the industry. By participating in the design of new PU injection mixing equipment and the automation transformation of the production line, to ensure that under the competition of China's demographic dividend is reduced and labor costs continue to rise, the production efficiency also can be improved, labor and material costs can be reduced. In addition, the continuous design and manufacturing capabilities of key equipment such as fixtures, special equipment, and automatic molds are also the reasons why Finehope is in a leading position in all aspects.

Finehope's ability to continuously reduce costs and innovate products can help customers bring greater value. Therefore, it is a reliable long-term partner of many Fortune 500 companies and leading companies in the industry.



[China pu polyurethane foam factory](#) Finehope's refinement reduces the trouble for customers, because it reduces the negligence on the human process system and the ability to continuously accumulate professional experience, which can ensure that all new projects are completed in the shortest time.

# Famous customer

Cooperation experience

Engineering  
Vehicle

**BOYD**  
CORPORATION

**TVH**



**Honeywell** | **STIGA** **CAT**

Medical  
Equipment

**Hill-Rom**

**INVACARE**  
Yes, you can.

**MAQUET**  
GETINGE GROUP

**DrPosture**

**Ki Mobility**

Baby  
Supplies

**Bumbo** **Nuby**

**bugaboo**

**chicco**

**Hatch**  
Baby

**GRACO**

Fitness  
Equipment

**STAR TRAC**  
expect different.

**BOWFLEX**

**IB&G**  
BUILDING PRODUCTS

**ergoDRIVEN**  
ergonomic solutions

**NUVA**  
ergonomic solutions

Other

**PANDORA**  
UNFORGETTABLE MOMENTS

**Cubefit**

**Knoll**

## FAQ

### 1. Why you choose Finehope?

Finehope is the most professional PU manufacturer in China, which has a professional R&D team, advanced PU production equipment, professional testing equipment and perfect quality management system. We have 12-year cooperation experience with CAT, FIAT, TVH, STIGA and other famous enterprises. We provide them with one-step service from R&D to production to satisfy their customization needs.

### 2. What are the advantages of choosing Finehope?

- 1) Product quality assurance, delivery guarantee, good after-sales service.
- 2) Cost-effective, fast development efficiency, professional operation with integrity.
- 3) Finehope will conduct all testing analysis and then work out testing standards to reduce quality standard dispute between customers and manufacturers.
- 4) Lean production management mode.
- 5) Help customers to develop and design new products.
- 6) Has rich experience in the design and processing of PU products.
- 7) Finehope is a high-tech enterprise in China with domestic and have international invention patents technology and intellectual property.

### 3. What are the difference between Finehope and domestic peers?

- 1) Quality assurance: advanced quality planning (APQP).
- 2) Finehope has rich experience in serving international large enterprises.

- 3) Has professional scientific research team of polyurethane material.
- 4) Has independent design, manufacturing and innovation ability of production equipment and molds.
- 5) Has engineer team who is responsible for the quality assurance system and quality control.

**4. What are the differences between Finehope and European and U.S peers?**

- 1) Has perfect and mature supporting supply chain.
- 2) Lower mold costs.
- 3) High efficiency of development and design ability and short process time.
- 4) Cost advantage and good service attitude.

**5. What are the applications of PU products?**

Car, engineering machinery, sports fitness equipment, medical machinery and daily household items and so on.



## About us



OUR  
BUILDING









## Our Certification



**Xiamen Growth-oriented Micro,  
Small & Medium Enterprises**



**Xiamen Specialized, Refining,  
Differentiate, Innovative SMEs**



**Xiamen Science and Technology Little  
Giant Leading Enterprise**



Finehope has been rated as "Xiamen Growth-oriented Micro, Small & Medium Enterprises" since 2019. It is the scoring result of the Xiamen Municipal Government based on Finehope's various comprehensive indicators, growth models, brand strength in the industry, and good corporate reputation, then issue this certificate. It is a proof that Finehope stands out among thousands of small and medium-sized enterprises in the city.

Finehope has been rated as "Xiamen Specialized, Refining, Differentiate, Innovative SMEs" since 2020. "Specialized, Refining, Differentiate, Innovative" refers to SMEs with outstanding main business, strong professional capabilities, strong R&D and innovation capabilities, and development potential. Mainly concentrated in the new generation of information technology, high-end equipment manufacturing, new energy, new materials, biomedicine and other mid-to-high-end industries. The government emphasizes and recognizes finehope's "specialization, special innovation" is to encourage innovation and achieve specialization, reform, and specialization.

Since 2019, Finehope has been selected as the leading company of Xiamen Science and Technology Little Giant. This certificate was jointly issued by five departments of the Xiamen Municipal Government. The selection criteria focus on strategic emerging industries such as new generation information technology, high-end equipment, new materials, new energy, biology and new medicine, energy saving and environmental protection, and marine high-tech. Winning this honor shows that Finehope is at the forefront of the industry in new information technology and new materials.



### Food and Drug Administration Certification

Finehope has passed Food and Drug Administration certification every year since 2018. Food and Drug Administration approval means that the products produced by Finehope have obtained foreign government certificates (CFG) and can enter the global market smoothly.



### Integration of Informationization and Industrialization Management System Certificate

The certificate is assessed by the Xiamen Municipal Government and issued by the Shanghai Academy of Quality Management Science. This certificate reflects the level of Finehope's in-depth integration of informatization and industrialization. Finehope will continue to take a new path



### Work Safety Standardization Certificate

Manufacturing safety is important to prevent or lessen the risk of workplace injury, illness, and death. Finehope General Manager Tiger Side: "Only those manufacturing facilities which continue to emphasize safety as a top-level issue will remain highly productive and competitive in today's marketplace."



### Fujian Province Pollution Discharge Permit

Pollution discharge permits are the "identity cards" of all entities involved in the discharge of pollutants and are issued by the Xiamen Municipal Environmental Protection Bureau. General Secretary Xi Jinping emphasized that "the ecological environment should be protected like the eyes, and the ecological environment should be treated like life." Premier Li Keqiang said: "Environmental pollution is a hazard to the people's livelihood and the pain of the people's hearts."

### The Third Party -- TUV Certification

Since 2007, Finehope has continuously passed TUV certification and has become an Alibaba Verified Supplier. Verified Supplier is a high-quality supplier verified by the authoritative strength of Alibaba platform. Through online and offline on-site audits, the merchants' corporate qualifications, product qualifications, corporate capabilities, and other comprehensive strengths are reviewed and verification.

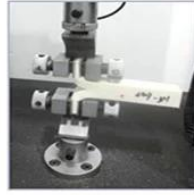
# Quality Assurance



UNIVERSAL TESTING MACHINE(UTM)



Tensile Test



Tear Resistance Test



Compressive Strength



Indentation Force Deflection

## INSPECTION STANDARD

## MATERIAL PERFORMANCE TEST REPORT

**Finehope**  
**Test Report** No. 00201457201 Date: 20140723 Page 1/4  
 Customer: CUSTOMER SERVICE DEPARTMENT

The following samples were submitted and identified by/on behalf of the client as:

Sample Description: UHMW and MHD (underdevelopment)  
 Material No.: 1  
 Other info.: 1  
 Sample Processing Date: 20140724  
 Working Process: 20140723

**Test Method**

- 101 ASTM D2014-2011 Test of Density, Test Agency
- 102 ASTM D2014-2011 Test of Density, Test Agency
- 103 ASTM D2014-2011 Test of Density, Test Agency
- 104 ASTM D2014-2011 Test of Density, Test Agency
- 105 ASTM D2014-2011 Test of Density, Test Agency
- 106 ASTM D2014-2011 Test of Density, Test Agency
- 107 ASTM D2014-2011 Test of Density, Test Agency
- 108 ASTM D2014-2011 Test of Density, Test Agency
- 109 ASTM D2014-2011 Test of Density, Test Agency
- 110 ASTM D2014-2011 Test of Density, Test Agency
- 111 ASTM D2014-2011 Test of Density, Test Agency
- 112 ASTM D2014-2011 Test of Density, Test Agency
- 113 ASTM D2014-2011 Test of Density, Test Agency
- 114 ASTM D2014-2011 Test of Density, Test Agency
- 115 ASTM D2014-2011 Test of Density, Test Agency
- 116 ASTM D2014-2011 Test of Density, Test Agency
- 117 ASTM D2014-2011 Test of Density, Test Agency
- 118 ASTM D2014-2011 Test of Density, Test Agency
- 119 ASTM D2014-2011 Test of Density, Test Agency
- 120 ASTM D2014-2011 Test of Density, Test Agency

**Finehope**  
**Test Report** No. 00201457201 Date: 20140723 Page 2/4  
 Customer: CUSTOMER SERVICE DEPARTMENT

**Test Result**

| No. | Test Item | Unit              | Test Standard | Customer Sample group |      |      | Customer Sample Unit |      |      |
|-----|-----------|-------------------|---------------|-----------------------|------|------|----------------------|------|------|
|     |           |                   |               | 1                     | 2    | 3    | 1                    | 2    | 3    |
| 1   | Density   | g/cm <sup>3</sup> | ASTM D2014    | 1.10                  | 1.10 | 1.10 | 1.10                 | 1.10 | 1.10 |
| 2   | Hardness  | HRB               | ASTM D2014    | 85                    | 85   | 85   | 85                   | 85   | 85   |
| 3   | Strength  | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 4   | Impact    | J/m <sup>2</sup>  | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 5   | Modulus   | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 6   | Strength  | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 7   | Strength  | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 8   | Strength  | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 9   | Strength  | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |
| 10  | Strength  | MPa               | ASTM D2014    | 100                   | 100  | 100  | 100                  | 100  | 100  |

**FIG:**

- In order to make the strength of two steel rods can be compared, set of the test specimen in the same direction about being and test data in one side to do the tensile strength test comparison.
- For the specific grade value in the above test result, it is the value of specimen with size in one side, and the actual value of the whole sample.

**Finehope**  
**Test Report** No. 00201457201 Date: 20140723 Page 3/4  
 Customer: CUSTOMER SERVICE DEPARTMENT

**Sketch Picture**

100 pictures is only used with the Serial report from Finehope.

|                        |                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------|
| <b>Customer</b>        |                                                                                                    |
| <b>Location</b>        | New Zealand                                                                                        |
| <b>Customer Code</b>   | G1019                                                                                              |
| <b>Risk Assessment</b> |                                                                                                    |
| <b>New:</b>            | Site <input type="checkbox"/> Technology <input type="checkbox"/> Process <input type="checkbox"/> |
| <b>Other Risks</b>     | <input type="checkbox"/>                                                                           |

|                          |            |
|--------------------------|------------|
| <b>Project</b>           |            |
| <b>Finehope Contact</b>  | Wendy Yang |
| <b>Part No.</b>          |            |
| <b>Part Name</b>         | G1019Y04   |
| <b>Change Level/Date</b> |            |
| <b>User Plant(s)</b>     | Finehope   |

| Core Team Members | Company/Title   | Phone/Fax/E-Mail   |
|-------------------|-----------------|--------------------|
| Tiger Xu          | G.M.            |                    |
| Yibin Lim         | Vice G.M.       |                    |
| Cindy Wu          | Sales Manager   | cindy@finehope.com |
| Liangquan Wan     | Project Manager |                    |
| Wendy Yang        | Sales           | wendy@finehope.com |

| Build Level                    | Material Required Date | Quantity | No. Concurrent |        |
|--------------------------------|------------------------|----------|----------------|--------|
|                                |                        |          | SRs            | Majors |
| Product Design and Development | 21-Jun-21              | 10       |                |        |
| Product and Process Validation | 25-Jun-21              | 15       |                |        |

| APQP Deliverable                                               | Finehope APQP Reference Only | G<br>Y<br>R | Project Need Date | Supplier Timing Date | Actual Closure Date | Supplier Lead Resp Inits | Finehope Acceptance Complete | Remarks or Assistance Required |
|----------------------------------------------------------------|------------------------------|-------------|-------------------|----------------------|---------------------|--------------------------|------------------------------|--------------------------------|
|                                                                |                              |             |                   |                      |                     |                          |                              |                                |
| 1. Project Timeline (Synchronized w/Production Time Plan)      | 2030                         | G           | 20-Jun-21         | 21-Jun-21            | 21-Jun-21           | 22-Jun-21                | 23-Jun-21                    | /                              |
| 2. Customer Inputs / Requirements                              | 2030                         | G           | 23-Jun-21         | 24-Jun-21            | 24-Jun-21           | 25-Jun-21                | 26-Jun-21                    | /                              |
| 3. Warranty & Quality Mitigation Plan                          | 2030                         | G           | 24-Jun-21         | 25-Jun-21            | 25-Jun-21           | 26-Jun-21                | 27-Jun-21                    | /                              |
| 4. Customer Specific Requirements                              | 2030                         | G           | 25-Jun-21         | 26-Jun-21            | 26-Jun-21           | 27-Jun-21                | 28-Jun-21                    | /                              |
| 5. Design FMEA                                                 | 2080                         | G           | 26-Jun-21         | 27-Jun-21            | 27-Jun-21           | 28-Jun-21                | 29-Jun-21                    | /                              |
| 6. Preliminary Bill of Materials (BOM)                         | 2030                         | G           | 27-Jun-21         | 28-Jun-21            | 28-Jun-21           | 29-Jun-21                | 30-Jun-21                    | /                              |
| 7. Prototype Control Plans                                     | 2110                         | G           | 28-Jun-21         | 29-Jun-21            | 29-Jun-21           | 30-Jun-21                | 1-Jul-21                     | /                              |
| 8. Prototype Builds                                            | 2110                         | G           | 29-Jun-21         | 30-Jun-21            | 30-Jun-21           | 1-Jul-21                 | 2-Jul-21                     | /                              |
| 9. Design Verification Plan & Report (DVP&R)                   | 2120                         | G           | 30-Jun-21         | 1-Jul-21             | 1-Jul-21            | 2-Jul-21                 | 3-Jul-21                     | /                              |
| 10. Design / Process Review                                    | 2130                         | G           | 1-Jul-21          | 2-Jul-21             | 2-Jul-21            | 3-Jul-21                 | 4-Jul-21                     | /                              |
| 11. Team Feasibility Commitment                                | 2130                         | G           | 2-Jul-21          | 3-Jul-21             | 3-Jul-21            | 4-Jul-21                 | 5-Jul-21                     | /                              |
| 12. APQP Status Sub-Supplier                                   | 2130                         | G           | 3-Jul-21          | 4-Jul-21             | 4-Jul-21            | 5-Jul-21                 | 6-Jul-21                     | /                              |
| 13. Production Drawing & Specifications                        | 2220                         | G           | 4-Jul-21          | 5-Jul-21             | 5-Jul-21            | 6-Jul-21                 | 7-Jul-21                     | /                              |
| 14. Subcontractor Purchase Orders (Customer Tooling)           | 2220                         | G           | 5-Jul-21          | 6-Jul-21             | 6-Jul-21            | 7-Jul-21                 | 8-Jul-21                     | /                              |
| 15. Facilities, Equipment, Tools and Gages                     | 2260                         | G           | 6-Jul-21          | 7-Jul-21             | 7-Jul-21            | 8-Jul-21                 | 9-Jul-21                     | /                              |
| AIAG APQP Phase 3 - Process Design and Development             |                              |             |                   |                      |                     |                          |                              |                                |
| 16. Product/Process and Quality System Review                  | 3030                         | G           | 9-Jul-21          | 10-Jul-21            | 10-Jul-21           | 10-Jul-21                | 11-Jul-21                    | /                              |
| 17. Manufacturing Process Flow Chart                           | 3040                         | G           | 11-Jul-21         | 12-Jul-21            | 12-Jul-21           | 12-Jul-21                | 13-Jul-21                    | /                              |
| 18. Process FMEA                                               | 3100                         | G           | 13-Jul-21         | 14-Jul-21            | 14-Jul-21           | 14-Jul-21                | 15-Jul-21                    | /                              |
| 19. Pre-Launch Control Plan                                    | 3110                         | G           | 15-Jul-21         | 16-Jul-21            | 16-Jul-21           | 16-Jul-21                | 17-Jul-21                    | /                              |
| 20. Process Work Instructions                                  | 3120                         | G           | 17-Jul-21         | 18-Jul-21            | 18-Jul-21           | 18-Jul-21                | 19-Jul-21                    | /                              |
| 21. Measurement Systems Evaluation                             | 3130                         | G           | 19-Jul-21         | 20-Jul-21            | 20-Jul-21           | 20-Jul-21                | 21-Jul-21                    | /                              |
| 22. Packaging Specifications & Approvals                       | 3160                         | G           | 21-Jul-21         | 22-Jul-21            | 22-Jul-21           | 22-Jul-21                | 23-Jul-21                    | /                              |
| 23. Manufacturing Team Training                                | 3170                         | G           | 23-Jul-21         | 24-Jul-21            | 24-Jul-21           | 24-Jul-21                | 25-Jul-21                    | /                              |
| AIAG APQP Phase 4 - Product and Process Validation             |                              |             |                   |                      |                     |                          |                              |                                |
| 24. Subcontractor PPAP Approval                                | 4005                         | G           | 9-Jul-21          | 10-Jul-21            | 10-Jul-21           | 10-Jul-21                | 11-Jul-21                    | /                              |
| 25. Production Control Plan                                    | 4008                         | G           | 11-Jul-21         | 12-Jul-21            | 12-Jul-21           | 12-Jul-21                | 13-Jul-21                    | /                              |
| 26. Production Readiness Review (PRR)                          | 4009                         | G           | 13-Jul-21         | 14-Jul-21            | 14-Jul-21           | 14-Jul-21                | 15-Jul-21                    | /                              |
| 27. Production Trial Run (PTR)                                 | 4010                         | G           | 15-Jul-21         | 16-Jul-21            | 16-Jul-21           | 16-Jul-21                | 17-Jul-21                    | /                              |
| 28. Process Capability Studies                                 | 4030                         | G           | 17-Jul-21         | 18-Jul-21            | 18-Jul-21           | 18-Jul-21                | 19-Jul-21                    | /                              |
| 29. Production Validation Plan & Report (PV&R)                 | 4090                         | G           | 19-Jul-21         | 20-Jul-21            | 20-Jul-21           | 20-Jul-21                | 21-Jul-21                    | /                              |
| 30. Production Part Approval (PPAP)                            | 4110                         | G           | 21-Jul-21         | 22-Jul-21            | 22-Jul-21           | 22-Jul-21                | 23-Jul-21                    | /                              |
| AIAG APQP Phase 5 - Feedback, Assessment and Corrective Action |                              |             |                   |                      |                     |                          |                              |                                |
| 31. Initial Production Shipment                                | 5005                         | G           | 20-Jul-21         | 30-Jul-21            | 30-Jul-21           | 30-Jul-21                | 31-Jul-21                    | /                              |
| 32. Production Ramp-up Plan                                    | 5005                         | G           | 31-Jul-21         | 2-Aug-21             | 2-Aug-21            | 2-Aug-21                 | 3-Aug-21                     | /                              |
| 33. Full Production Date                                       | 5005                         | G           | 5-Aug-21          | 7-Aug-21             | 7-Aug-21            | 7-Aug-21                 | 8-Aug-21                     | /                              |
| 34. Conduct Lessons Learned                                    | 5005                         | G           | 8-Aug-21          | 10-Aug-21            | 10-Aug-21           | 10-Aug-21                | 11-Aug-21                    | /                              |

## Design Failure Mode and Effects Analysis (Design FMEA)

FMEA No.:  
DFMEA-001

Page: page 1, totally 3 pages  
Made: Xiaodong Qiu

Product Name: Injection moulding

Procedure responsible dept: Production Dept

Model year/vehicle types: CRV

Soybean Milk Maker

Important date: Nov.10th,2015

FMEA Date: Nov.10th,2015

People participated: Develop dept:GaoLin Wei

Sales:Haiyan Wu

PC:Jiannan Yan

Technology Dept:Jianyu Zhou

Purchaser:Yuanyuan Gou

Production dept:Shuwen Dong

QC:Bingxiang Zheng

| procedure function requirements | Potential failure mode    | Potential effects analysis | severity (S) | grade | potential causes/mechanisms of failure                                                                                                                                                     | frequency (O) | Current prevention process control                                                                       | Current detection process control | detection (D) | RPN | recommended measures                                                                                        | Responsibility and target completion date | action results                                                                              |               |                        |     |    |
|---------------------------------|---------------------------|----------------------------|--------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|-----|-------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|---------------|------------------------|-----|----|
|                                 |                           |                            |              |       |                                                                                                                                                                                            |               |                                                                                                          |                                   |               |     |                                                                                                             |                                           | severity (S)                                                                                | frequency (O) | difficult to check (D) | RPN |    |
| scyphus                         | size changes of handle    | handle cover fall off      | 6            | A     | PP size change                                                                                                                                                                             | 6             | By adjusting the product of the injection molding process, and measure or test the clasp of product size | measure and test product size     | 3             | 108 | Add the number of button bit in handle design, in order to keep the connection strength                     | Xiaodong Qiu<br>2015/08/25                | By adjusting the product of the injection molding process, and measure or test product size | 6             | 1                      | 1   | 6  |
| scyphus                         | warping of scyphus handle | Poor appearance break      | 4            | C     | high handle wall                                                                                                                                                                           | 6             | Add the stiffener to handle wall to prevent deformation                                                  | measure and test product size     | 2             | 48  | if this problem appears, make improvement by Adding the stiffener                                           | Xiaodong Qiu<br>2015/09/30                | Add the stiffener to handle wall to prevent deformation                                     | 4             | 2                      | 1   | 8  |
| scyphus                         | Deformation of cup-mouth  | Micro switch without power | 8            | A     | PP material deformation, Resulting in a perpendicular direction to connect the cup and handle inward deformation, So that both sides of the 球, the micro switch column opposite sink., and | 3             | Adjust the injection molding process, to prevent extrusion                                               | measure and test cup-mouth size   | 3             | 72  | in the cup packing control the direction of the lateral dimension of no force, stipulate the way of packing | Xiaodong Qiu<br>2015/09/10                | stipulate the cup use egg cell methods to put the packing which do not squeeze each other   | 8             | 1                      | 3   | 24 |

H-R-P-001-1

## Process Failure Mode and Effects Analysis (PFMEA)

### 潜在失效模式和后果分析

FMEA No.FMEA20150325-01

Page 3

Maint:Wenhong-Huang

FMEA Date (Original):2015.03.25

Item:Welding Improvement

Process Responsibilities: Production welding group

Model year/project

Key Dates

| Item<br>项目                                                                           | Potential failure mode<br>潜在失效模式                                                                      | Potential consequences of failure modes<br>失效后果/潜在失效模式 | Severity<br>严重度 | Grade<br>等级 | Potential causes of failure<br>失效的潜在原因                                                      | Occurrence degree<br>发生度 | Current process control and prevention<br>现行过程控制/预防                                                                                                                | Current process control detection<br>现行过程控制/检测                             | Detection rate<br>检测率 | RPN | Suggest measures<br>建议措施                                                                                                                     | Responsibility and target completion date<br>负责人及目标完成日期 | Measure results/测量结果                   |                 |                       |                          |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------|-------------|---------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------|-----------------|-----------------------|--------------------------|
|                                                                                      |                                                                                                       |                                                        |                 |             |                                                                                             |                          |                                                                                                                                                                    |                                                                            |                       |     |                                                                                                                                              |                                                         | Measures and effective date<br>措施及有效日期 | Severity<br>严重度 | Incidence rate<br>发生率 | Detection degree<br>可检测度 |
| Clamping is not in place<br>夹具不在位                                                    | SizeNG<br>尺寸NG                                                                                        |                                                        | 6               | B           | ● Staff negligence<br>人员疏忽<br>● Failure for bad<br>夹具不到位                                    | 4                        | ● Make the operation standard book<br>制定作业标准书<br>● Make maintenance standards,<br>regular maintenance<br>制定保养标准,定期保养,维护                                            | ● Visual inspection<br>目视检测<br>● Finished 100% full inspection<br>完成100%全检 | 6                     | 144 | ● Pre-service training of staff<br>岗前培训<br>● Regular maintenance<br>工器具定期维护                                                                  |                                                         | 6                                      | 3               | 4                     | 72                       |
| Clamping (Clamping required is in place, no missing or wrong loaded)<br>夹具不在位,无漏装/错装 | Welding error, leak, welding deviation, affect the assembly or use function<br>焊接错误,漏焊,焊接偏差,影响装配或使用功能 |                                                        | 8               | A           | ● Staff negligence<br>人员疏忽<br>● Failure for bad<br>夹具不到位<br>● Failure inaccurate<br>夹具定位不准确 | 4                        | ● Make the operation standard book<br>制定作业标准书<br>● Make maintenance standards,<br>regular maintenance<br>制定保养标准,定期保养,维护<br>● Regular checking of fixture<br>夹具定期点检 | Visual inspection<br>目视检测                                                  | 6                     | 192 | ● Pre-service training of staff<br>岗前培训<br>● Regular maintenance<br>工器具定期维护<br>● Make inspection checklist for fixture<br>制定夹具点检表            |                                                         | 8                                      | 3               | 4                     | 96                       |
| Attachments missing<br>附件缺失                                                          | Affect product strength or influence the assembly<br>影响产品强度或影响装配                                      |                                                        | 8               | A           | Staff negligence<br>作业人员疏忽                                                                  | 3                        | Make the operation standard book<br>制定作业标准书                                                                                                                        | Visual inspection<br>目视检测                                                  | 4                     | 96  | Final inspection personnel do 100% full inspection for each bead with man<br>每粒人工100%全检,确认                                                   |                                                         | 8                                      | 2               | 2                     | 32                       |
| Attachment error<br>附件错误                                                             | Influence assembly<br>影响装配                                                                            |                                                        | 7               | A           | No mistake proofing fixture<br>无防错夹具                                                        | 3                        | Make the operation standard book<br>制定作业标准书                                                                                                                        | Visual inspection<br>目视检测                                                  | 6                     | 126 | ● Increase the mistake proofing devices<br>增加防错装置<br>● Inspection for final inspection tools<br>对终检工具点检                                      |                                                         | 7                                      | 2               | 4                     | 56                       |
| False welding<br>假焊                                                                  | Lack of strength, affect the use of function<br>强度不足,影响使用功能                                           |                                                        | 9               | A           | Current, voltage, welding angle, speed setting is not reasonable<br>电流,电压,焊接角度,速度设置不合理      | 4                        | ● Welding process guidance<br>制定焊接工艺指导书<br>● Condition confirmation check<br>加工条件确认书<br>● Confirm the failure test on a regular basis<br>定期开展失效试验                  | Destructive testing<br>破坏性试验                                               | 8                     | 288 | After the procedure is set up to confirm the processing conditions, the execution and marking of the failure test is performed.<br>工序设置完成后确认 |                                                         | 9                                      | 3               | 4                     | 108                      |



## Production Device

### KRAUSS MAFFEI

Finehope has successively introduced many of the world's most advanced German KraussMaffei high-pressure injection machines since 2010.



Reaction Injection Molding (RIM) High Pressure Machine KRAUSS MAFFEI Made in Germany!



### Self-invented fully automatic production line

Finehope has independently developed a number of fully automatic P-U injection production lines since 2010. These production lines reduce production costs and meet customer delivery requirements.



### Welding Robots



Since 2016, Finehope has continued to purchase welding robots and automatic fixture turntables for welding metal parts. The independent processing of accessories saves the waiting time and procurement cost of outsourcing processing.

### CNC Machine

Finehope has continued to purchase CNC equipment since 2016. CNC (Computer Numerically Controlled) machining is a manufacturing process in which pre-programmed computer software dictates the movement of factory tools and machinery. Using this type of machine versus manual machining can result in improved accuracy, increased production speeds, enhanced safety, increased efficiency and most importantly, help customers save costs and improve product quality.



### Mould Release Agent Painting Robot



Since 2019, Finehope has purchased robots for spraying water-based release agents to improve the working environment, improve spraying quality and material utilization, and reduce labor costs.

### 3D printer

Finehope started to purchase 3D printers in 2015. 3D printing can realize rapid proofing of new product prototypes and templates for resin molds, and can also be used for faster and cheaper small batch production.



# Social Responsibility

- **Audited by Sedex**

(Supplier business ethics information exchange )

Labor standard · health and safety · Environmental protection · Business ethics practice

- **Public-spirited**



Voluntary tree planting after Super Typhoon Meranti in 2016

## A VALUE-BASED COMPANY



