

Anhui Yimeijian Medical Supplies Co., LTD

# Technical Documentation

## Medical Face Masks

according to

## Regulation 2017/745

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## Chapter 1 DEVICE DESCRIPTION AND SPECIFICATION, INCLUDING VARIANTS AND ACCESSORIES

### 1.1 Device description and specification

#### 1.1.1 Name and address of the manufacturer

**Name of Manufacturer:**

Anhui Yimeijian Medical Supplies Co.LTD.

**Address:**

No.8, North Feilong Road, Xinjie Town, Tianchang City, Anhui Province, China

**Contact:**

Contact Person: 陆干祥

Tel: 15357104333

Fax: 0550-7695866

Email: 498986962@qq.com

**Name of Factory/producer:**

Anhui Yimeijian Medical Supplies Co.LTD.

**Address:**

No.8, North Feilong Road, Xinjie Town, Tianchang City, Anhui Province, China

#### 1.1.2 Device name and general description of the device

**Device Name:**

Medical Face Masks

**Model:** YMJ1, YMJ2, YMJ3

**General description of the device:**

The YMJ1/YMJ2 Medical Face Masks are Flat Pleated type mask, utilizing Ear Loops way for wearing, and they all have Nose Piece design for fitting the face mask around the nose.

The YMJ3 Medical Face Masks are 3D design Masks, consists of mask body and ear loop.

The Medical Face Masks are manufactured with three layers. The outer layer is made of polypropylene (PP) non-woven fabric. The middle layer is filtration function and is made of polypropylene (PP) melt-blown non-woven fabric. The inner layer contact with face is made of polypropylene (PP) non-woven fabric.

The Medical Face Masks, ear loops, is held in place over the user's mouth and nose by two elastic ear loops welded to the facemask.

The Medical Face Masks are sold non-sterile and are intended to be single use. The shelf-life of the product is 3 years.

### **1.1.3 Intended use**

The Medical Face Masks are intended to be worn to protect against the spread or transmission of infectious germs during surgical interventions in operating theatres and other medical facilities. The main aim is to protect the patient against infectious germs. In addition, in certain situations the wearer should be protected against splashes of potentially contaminated liquids and viable particles.

### **1.1.4 Intended users**

Healthcare personnel, Patients or other persons

### **1.1.5 Basic UDI-DI**

The Basic UDI-DI is the primary identifier of a device model. It is the DI assigned at the level of the device unit of use. It is the main key for records in the UDI database and is referenced in relevant certificates and EU declarations of conformity.

UDI-DI: The UDI-DI is a unique numeric or alphanumeric code specific to a model of device and that is also used as the 'access key' to information stored in a UDI database.

UDI-PI: The UDI-PI is a numeric or alphanumeric code that identifies the unit of device production. The different types of UDI-PIs include serial number, lot number, software identification and manufacturing or expiry date or both types of date.

A UDI shall be assigned to the device itself or its packaging. The UDI shall contain two parts: a UDI-DI and a UDI-PI. The UDI-DI shall be unique at each level of device packaging.

UDI-DI: it is not applicable

### **1.1.6 The disease status to be diagnosed/targeted/monitored**

None

### 1.1.7 Contraindications

None

### 1.1.8 Waring and Cautions

- If there is redness, swelling and itching after usage, please stop using it and consult your physician.
- Only for single use.
- Stay away from fire.
- Correctly distinguish the front and back prior to use.
- The device should be stored in a dry room with excellent ventilation and without caustic gases.
- Properly discard the used disposable Medical Face Masks according to local policy. Avoiding re-use and cross infection.
- The device should not be used over 24h, allergic reactions may occur with delay use and cross infection.

### 1.1.9 Description of the principle

Non-woven fabrics have the characteristics of water repellency, air permeability, flexibility and light weight. Therefore, choosing suitable thickness of outer non-woven fabrics can protect the wearer from potential contaminated liquid splashing. In addition, the fiber diameter of the intermediate melt-blown filter layer can be as small as 1-5 $\mu$ m. These fibers with unique capillary structure can increase the number and surface area of fibers per unit area, effectively filter bacteria and dust, and prevent the spread of infectious pathogens. In addition, the design of nose clip and the design of mask stack can make the mask fit the shape of face, thus reducing the probability of infectious pathogens entering from the side.

### 1.1.10 Rationale for the qualification of the product

We, Anhui Yimeijian Medical Supplies Co., LTD. hereby claim that, as legal manufacturer, we have established and maintained a quality management system according to Article 10(9) of Regulation 2017/745 for manufacturing of Medical Face Masks

### 1.1.11 Classification rule(s)

Device Name: Medical Face Masks

According to Regulation (EU) 2017/745(MDR) Appendix VIII Rule 1, the Medical Face Masks is classified as a Class I medical device.

|        |         |
|--------|---------|
| RULE 1 | VERDICT |
|--------|---------|

|   |                |
|---|----------------|
| <p>All non-invasive devices are in Class I, unless one of the rules set out hereinafter applies.</p>  |                |
| <p>Rationale: The Non-woven face masks are a single use and non-invasive medical device. The devices are intended to be wore to protect both patient and others persons from transfer of microorganisms, body fluid and particulate material.</p> | <p>Class I</p> |




**1.1.12 Explanation for novel features**

None

**1.1.13 Description of the accessories**

None

**1.1.14 Description of the Variant configurations/ variants**

| Model | Classification | Characteristic     | Size        | Color             | Layer | Picture   |
|-------|----------------|--------------------|-------------|-------------------|-------|---|
| YMJ1  | Type II        | Adult Face Mask    | 17x9.5cm    | Blue, White, Pink | 3     |  |
| YMJ2  | Type II        | Children Face Mask | 14.5x9.5cm  | Blue, White, Pink | 3     |  |
| YMJ3  | Type IIR       | 3D face mask       | 16.7*14.1cm | White             | 4     |  |



### 1.1.15 Description of the key functional elements

#### Product components:

The Medical Face Masks (YMJ1, YMJ2) consist of mask body, Nose piece and Elastic bands.

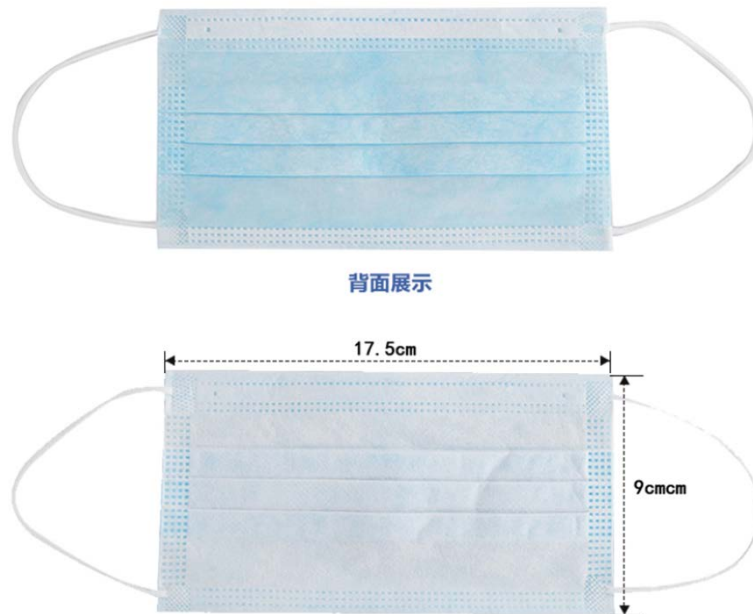


Figure 1-Medical Face Masks (YMJ1, YMJ2)

The Medical Face Masks (YMJ3) consist of mask body and earloop



Figure 1-Medical Face Masks (YMJ3)

## 1.1.16 Raw materials and packaging materials

| NO. | Parts name                                 | Material   | Specification Material  |
|-----|--|--|---|
| 1.  | Face masks<br>Inner layer                  | Polypropylene<br>nonwoven                        | 18~20g/m <sup>2</sup> white non-<br>woven fabric              |
| 2.  | Face masks<br>middle layer<br>(YMJ1, YMJ2) | Polypropylene melt-<br>blown non-woven<br>fabric | 25g/m <sup>2</sup> melt-blown non-<br>woven fabric            |
| 3.  | Face masks<br>middle layer<br>(YMJ3)       | Polypropylene melt-<br>blown non-woven<br>fabric | 50g/m <sup>2</sup> melt-blown non-<br>woven fabric            |
| 4.  | Face masks<br>outer layer                  | Polypropylene<br>nonwoven                        | 20-28g/m <sup>2</sup><br>blue/white/pink non-<br>woven fabric |
| 5.  | Elastic bands<br>(YMJ1, YMJ2)              | Polyester fiber &<br>Spandex                     | White round elastic string                                    |
| 6.  | Earloop (YMJ3)                             | Elastic nonwoven                                 | Elastic nonwoven fabric                                       |
| 7.  | Nose piece<br>(YMJ1, YMJ2)                 | PP strip with iron or<br>aluminum inside         | white   |
| 8.  | Inner package                              | PET+PE   | 27.5cm×14.5cm×6s<br>24.5cm×13.5cm×6s                          |
| 9.  | Outer box                                  | Double corrugated box                            | 600-700g/m <sup>2</sup> white or<br>brown double corrugated   |
| 10. | Heat Sealable<br>Film                      | PE   | 23.2cm*2.3s   |

## 1.1.17 Product Specifications

Table 1. Basic dimensions (unit: mm)

| Model | Size        |
|-------|-------------|
| YMJ1  | 17x9.5cm    |
| YMJ2  | 14.5x9.5cm  |
| YMJ3  | 16.7*14.1cm |

Table 2 Performance requirements

| Test  | Type II |       | Type II R |
|---|---------|-------|-----------|
|   | YMJ1    | YMJ2  | YMJ3      |
| Bacterial filtration<br>efficiency (BFE), (%) | ≥ 98%   | ≥ 98% | ≥ 98%     |

|   |              |              |        |
|---|--------------|--------------|--------|
| Differential pressure (Pa/cm <sup>2</sup> ) | < 40         | < 40         | < 60   |
| Splash resistance pressure (kPa)            | Not required | Not required | ≥ 16,0 |
| Microbial cleanliness (cfu/g)               | ≤ 30         | ≤ 30         | ≤ 30   |

## 1.2 Previous and similar generation of the device

**Overview of the previous generations of the device produced by the manufacturer:** None

**Overview of identified similar devices available on the Union or international markets:**

➤ **Xiantao Zhibo Non-woven Products Co., Ltd**

Product type :Type I,Type II,Type IIR

Product name: 3 ply Face Mask with Ear loop, Disposable Surgical Masks with Tie on, 3 ply Ear loop Medical Face Mask, 3 ply Ear loop Medical Face Mask etc.,

Item no: ZB-020,ZB-021,ZB-058,ZB-059

Technical Specifications: Conforms to EN 14683 standards, Material: PP, 3 layer, nose strip:PE wire,Color:Green,Blue, Size:17.5\*9.5cm

➤ **Zhejiang Lanhine Mask Co.,LTD**

Product type: Type I, Type II, Type IIR

Product name: Tie on Face mask, print Face Mask , splash Resistance Face mask etc.,

Technical Specifications: Conforms to EN 14683 standards, Material: PP, nose barrette:Iron with plastic,Color:Green,Blue, Black etc,. Size:17.5\*9.5cm

➤ **Hubei Haixin Protective Products Co.,Ltd**

Product type: Type I, Type II, Type IIR

Product name: 3 ply Face Mask with Ear loop, 3 ply Face Mask with Tie, 3 ply PP Face Mask with with Tie, 3 ply PP Face Mask with with Ear Loop etc.,

Code:F91013,F92613

Technical Specifications: Conforms to EN 14683 standards, Material: PP, 3 ply, Color:pink,Blue,White etc,. Size:17.5\*9.5cm, 14.5\*9.5cm, 12\*7cm,

➤ **Guangshui Topwin Medical Science and Technology Products Co., Ltd.**

Product Name: 3D Medical face mask

- ▶ Material: non woven 20gsm PP+20gsm filter+20gsm PP /2 0 gsm PP+25gsm filter+20gsm PP
- ▶ Size: 16.5x9cm, 17.5x9cm, 17.5x9.5cm, 14.5x9cm
- ▶ Color: White, blue, green, pink
- ▶ Printing: could according to customers requirement, customer logo can be printed on.
- ▶ Packing: 50pcs/PE bag or boxes, 50bags or boxes/ctn.
- ▶ Standards: CE, ISO13485, EN14683.
- ▶ Bacterial Filtration Efficiency (BFE) standards of 95%.

➤ **TAIWAN STANCH CO., LTD.,**

Product Name: LAITEST 3D FACE MASK

- ▶ External Material : Polypropylene material
- ▶ Internal Material : Non-woven, EP fabric material
- ▶ Type : 3 Layers and 3D Design
- ▶ Bacterial Filtration Efficiency (BFE) standards of 99%.
- ▶ Packing : MA-005-EOP-5pcs/Bag
- ▶ Designed for adults filter mask : Effectively protects against: sub-micron particles, fine dust, biological agents (bacteria, or bacteria), and fluid splashes
- ▶ Three layer Design :
  - ◆ External layer - Fluid splash resistant and odor absorbing layer.
  - ◆ Filter layer - Bacterial Filtration Efficiency (BFE) standards of 99%.
  - ◆ Inner layer - soft fiber material, provides a comfortable feeling for prolonged wear.
- ▶ 3D Design : 3D design can avoid direct contact from mouth to the mask, increase the comfort of wearing.

**1.3 EC Authorized Representative**

Since the registration address of Anhui Yimeijian Medical Supplies Co., LTD. is located outside the area of EEA, Switzerland and Turkey, a single authorized representative located in EEA, Switzerland and Turkey is appointed to Medical Face Masks, which is:

|         |  |
|---------|--|
| Name:   | Caretechion GmbH                               |
| Add:    | Niederrheinstr 71, 40474 Duesseldorf, Germany, |
| Tel:    | +49 211 3003 6618                              |
| Fax:    | +49 211 3003 6619                              |
| Contact | Mr. Jian Wang                                  |

|            |                     |
|------------|---------------------|
| Person     |                     |
| Dimdi Code | DE/0000048026       |
| E-mail:    | info@caretechion.de |

The agreement with the appointed EU authorized representative has been signed and is provided in the attachment:

➤ **Folder 01 # CE-01-0102: EU authorized representative agreement**

**1.4 CND code**

CND code: T020601 STANDARD SURGICAL FACE MASKS

**1.5 Declaration of conformity**

Declaration of Conformity for Face Masks is attached in the attachment.

➤ **Folder 01# CE-01-0103\_ Declaration of Conformity**

## Chapter 2 INFORMATION TO BE SUPPLIED BY THE MANUFACTURER

- Annex I of Regulation (EU) 2017/745
- EN 1041:2008+A1:2013
- EN ISO 15223-1:2016
- EN 14683:2019

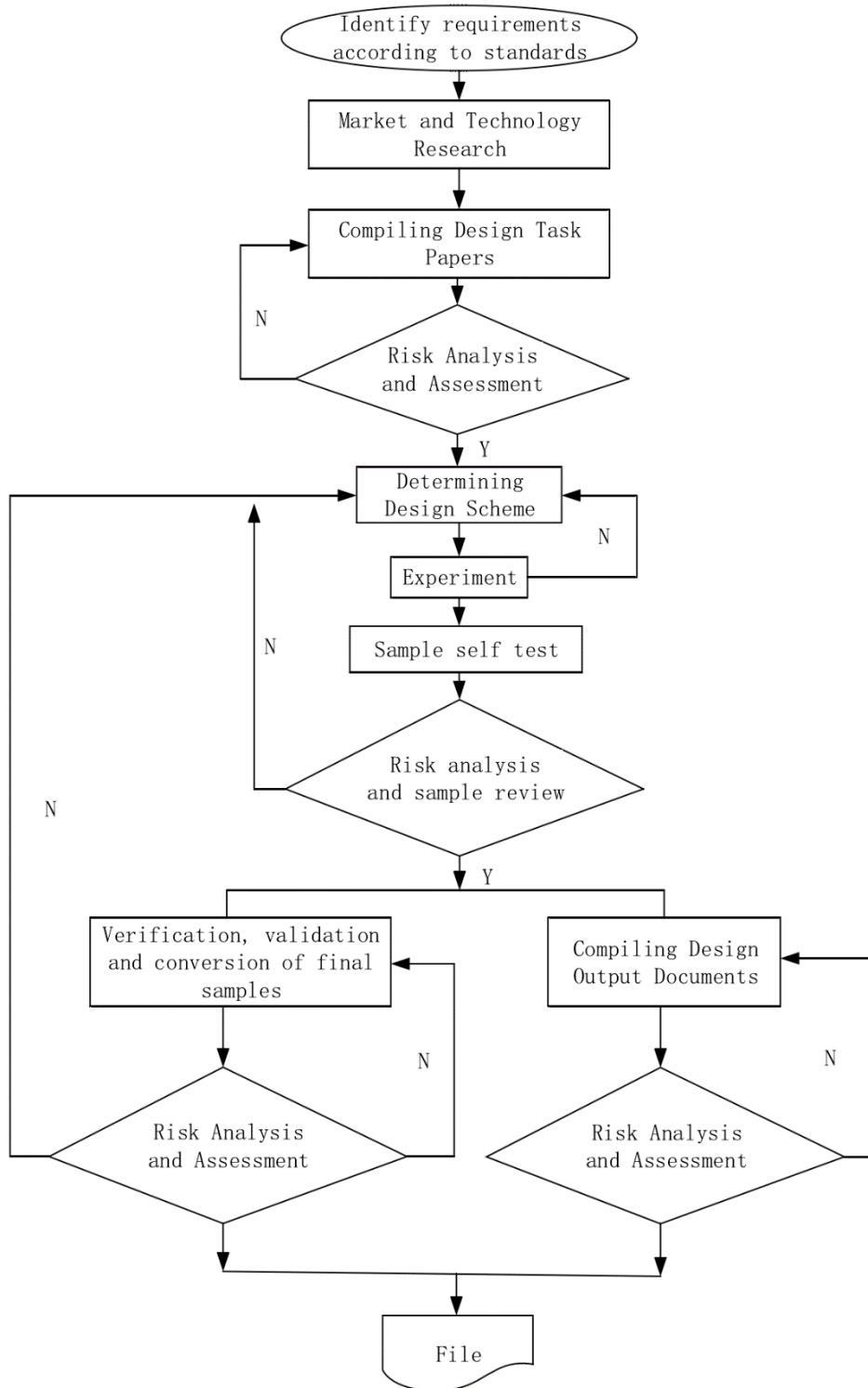
The draft labels are given in the attachments:

- **Folder 02 # CE-01-0201\_Label**

## Chapter 3 DESIGN AND MANUFACTURING INFORMATION

### 3.1 Design Information

#### 3.1.1 Design and Development flow chart



### 3.1.2 Design and Development inputs

#### ➤ Information for users

When breathing, speaking, coughing, sneezing etc., one releases smaller or larger amounts of droplets of secretions from the mucous membranes in the mouth and nose. Those droplets quickly evaporate and leave nuclei suspended in the air. The majority of the nuclei are between 0.5  $\mu\text{m}$  and 12  $\mu\text{m}$  in diameter and especially the larger droplets can contain micro-organisms from the source site. Nuclei can subsequently spread through the air to a susceptible site such as an open operating wound or sterile equipment.

The medical face masks intended to be used in operating rooms and health care settings with similar requirements are designed to protect the entire working environment. As a minimum, Type I medical face masks are used for patients in order to reduce the risk of the spread of infections, particularly in epidemic or pandemic situations. Type II masks are principally intended for use by healthcare professionals in an operating room or other medical settings with similar requirements.

The level of efficiency offered by a mask depends on a number of factors such as the filtration efficiency, quality of the material and the fit of the mask on the wearer's face. Different designs are suited for different applications and the careful choice of mask is therefore important in order to achieve the desired result.

The filtration capacity of mask materials can vary depending on the filter media. The fit of masks varies considerably from those which are held in place by ear loops fastened behind the wearer's ears to those with tie bands around the head and a nose clamp that can be shaped to the wearer's nose. The effect of a very good or less good fit can be tested in vivo whereas the filtration efficiency may be reproducibly tested in vitro.

The considerable variations in results when masks are tested in vivo results in the need for large groups of test subjects and observations. It is thus usual to characterise mask performance using in vitro tests of the material from which the mask is made. It is, however, important to consider the fit of the mask carefully when a mask for a certain application is chosen. Users should request such information from their suppliers.

A further factor to be considered is the capacity of the mask to absorb moisture from the exhaled air and thereby to maintain its performance over a longer period of time. The more advanced designs easily maintain their performance throughout even very long operations whereas the less advanced ones are intended only for short procedures.

The contamination risk resulting from hand contact with a used mask means that it is essential that the mask is taken off and disposed of when no longer worn over nose and mouth. When there is a further need for protection then a new mask should be put on. Touching a used face mask or putting on a new one should always be followed by a full hand disinfection procedure and a used mask should always be disposed of when no longer needed or between two procedures.

In summary, to use an appropriate mask is an effective means to protect the working environment from droplet contamination from nose and throat during health care procedures. Masks with very different performance are, however, available. Therefore



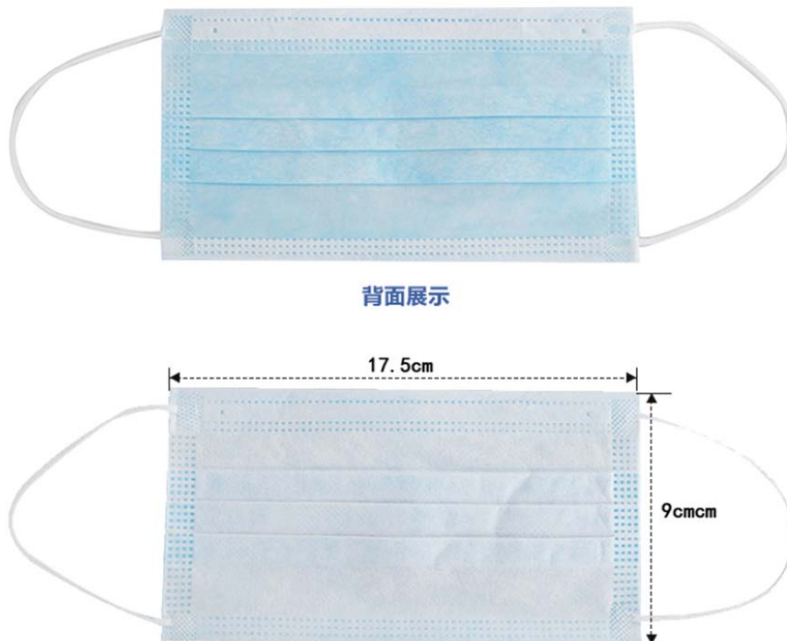
such factors as infection risk and mask fit should be carefully considered when choosing a mask.

➤ **Conform to EN 14683 standards**

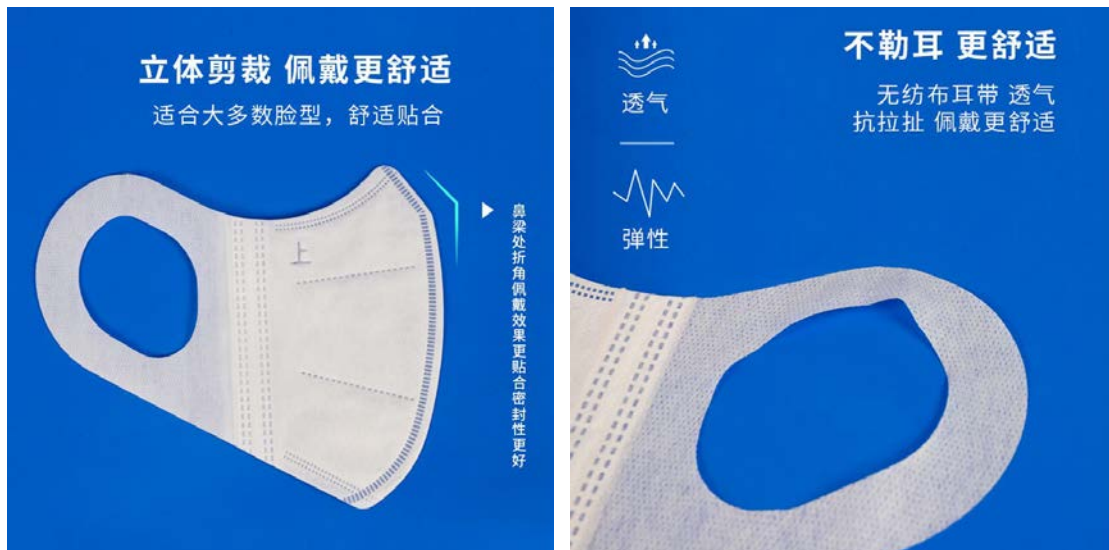
| Test  | Type II      |              | Type II R   |
|---|--------------|--------------|-------------|
|   | YMJ1         | YMJ2         | YMJ3        |
| Bacterial filtration efficiency (BFE), (%)  | $\geq 98\%$  | $\geq 98\%$  | $\geq 98\%$ |
| Differential pressure (Pa/cm <sup>2</sup> ) | < 40         | < 40         | < 60        |
| Splash resistance pressure (kPa)            | Not required | Not required | $\geq 16,0$ |
| Microbial cleanliness (cfu/g)               | $\leq 30$    | $\leq 30$    | $\leq 30$   |

**3.1.3 Design and Development Outputs**

**3.1.3.1 Drawings**



Drawings of YMJ1, YMJ2



Drawings of YMJ3

**3.1.3.2 Purchase list**

| NO. | Parts name                 | Material                                  | Supplier     |
|-----|----------------------------|---|--------------|
| 1.  | Face masks Inner layer     | Polypropylene nonwoven                    | 长兴天川非织布有限公司  |
| 2.  | Face masks middle layer    | Polypropylene melt-blown non-woven fabric | 宿迁鑫达净化材料有限公司 |
| 3.  | Face masks outer layer     | Polypropylene nonwoven                    | 长兴天川非织布有限公司  |
| 4.  | Elastic bands (YMJ1, YMJ2) | Polyester fiber & Spandex                 | 上海松江伟明仪器厂    |

|    |                         |                                       |                 |
|----|-------------------------|---------------------------------------|-----------------|
| 5. | Earloop (YMJ3)          | nonwoven                              | 温州市特康弹力科技股份有限公司 |
| 6. | Nose piece (YMJ1, YMJ2) | PP strip with iron or aluminum inside | 上海松江伟明仪器厂       |
| 7. | Inner package           | PET+PE                                | 扬州科信包装印刷有限公司    |
| 8. | Outer box               | Double corrugated box                 | 高邮市龙腾印刷厂        |
| 9. | Heat Sealable Film      | PE                                    | 天长市明月塑料制品厂      |

### 3.1.3.3 Production description

The materials of medical face masks are purchased from abroad, and the production process includes feeding, welding, packaging and warehousing. For the main raw materials/purchased parts, we will select the enterprises with good quality and high delivery efficiency from the suppliers for cooperation.

### 3.1.3.4 Labels on the package

- See Folder 2 # CE-01-02. label for Medical Face Masks

### 3.1.3.5 Product specification

|               |  |
|---------------|--|
| Dimension     | The size of the mask should meet the design requirements with an allowable tolerance of 5%   |
| Appearance    | The appearance of the mask should be smooth, without damage, stains, deformation and other obvious defects.  |
| Nose piece    | The mask should be equipped with a nose piece, which is made of flexible materials and should be no less than 8.0cm in length.   |
| Elastic bands | The Elastic bands should be elastic and suitable, the rupture strength of the mask belt and the connection between the mask belt and the mask body should be no less than 10N. |

| Type<br>Test                                | Type II      |              | Type II R   |
|---|--------------|--------------|-------------|
|   | YMJ1         | YMJ2         | YMJ3        |
| Bacterial filtration efficiency (BFE), (%)  | $\geq 98\%$  | $\geq 98\%$  | $\geq 98\%$ |
| Differential pressure (Pa/cm <sup>2</sup> ) | < 40         | < 40         | < 60        |
| Splash resistance pressure (kPa)            | Not required | Not required | $\geq 16,0$ |
| Microbial cleanliness (cfu/g)               | $\leq 30$    | $\leq 30$    | $\leq 30$   |

### 3.1.3.6 Documents on the Process operation

➤ Technical File

| No. | Document Name                             | Document No. |
|-----|---|--------------|
| 1   | Medical Face Masks technical requirements | CE-01-02     |

➤ Control procedure and Process SOP

| No. | Document Name                                 | Document No.    |
|-----|---|-----------------|
| 1.  | Material preparation post operation procedure | OP-PO-PD-001-00 |
| 2.  | Instructions for inner packing                | OP-PO-PD-003-00 |
| 3.  | Instructions for outer packing                | OP-PO-PD-004-00 |

➤ Process/inspection form

| No. | Document Name                              | Document No.    |
|-----|--|-----------------|
| 1   | YMJ1 YMJ2 Face mask Inspection procedures  | OP-FP-QC-001-00 |
| 2   | YMJ3 Finished product inspection procedure | OP-FP-QC-003-00 |

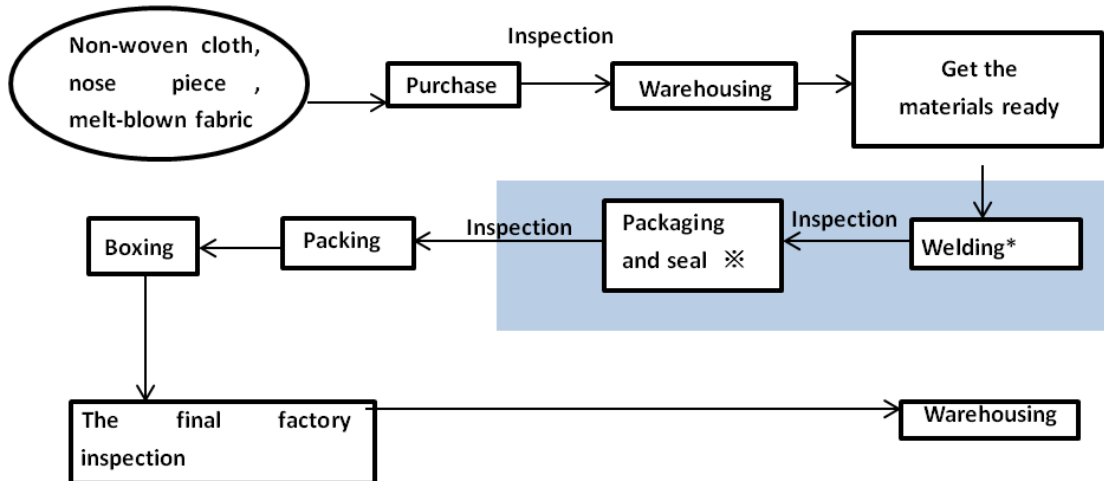
### 3.1.3.7 Labels on the package

➤ See Folder 2 # CE-01-0201. label for Medical Face Masks

### 3.2 Manufacturing information

#### 3.2.1 Production Process Flow Chart

Face mask manufacture flow chart



Symbol description:

(\* means critical process, ※ means special projects, [Blue Box] means clean area of Class 8 clean room)

Plant location: No.8, North Feilong Road, Xinjie Town, Tianchang City, Anhui Province, China

#### 3.2.2 Special processing validation

Validation of the elastic bands welding and package heat sealing process has been conducted and the approved parameters are monitored during routine production.

| No. | Document Name  | Document No.    |
|-----|--|-----------------|
| 1   | Procedures for operation and maintenance of mask machine             | OP-EO-PD-002-00 |
| 2   | Operation and maintenance of plastic film continuous sealing machine | OP-EO-PD-001-00 |

#### 3.2.3 Inspects and controls the environment

The company formulates the “Production environment control procedure”, “Personnel entering the production area procedure” and “Product cleaning and pollution control procedures” to keep the production area clean to guarantee the hygienism of the face masks.

“General production area cleaning record” was documented to supervise the clean procedure

## Chapter 4 GENERAL SAFETY AND PERFORMANCE REQUIREMENTS

### 4.1 General safety and performance requirements

The device has fulfilled all applicable Essential safety and performance requirements per Annex I of Regulation (EU) 2017/745(MDR). Detailed information is given in the Folder 4 # CE-01-04.

### 4.2 Applicable standards lists

(Harmonized standards, international standards, partly applicable standards)

Relevant standards applied to the device are listed as follows:

| No. | Standards           | Reference    | Content   |
|-----|---------------------|--------------|---|
| 1.  | MDR (EU) 2017/745   | 2017         | Regulation(EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC |
| 2.  | MEDDEV2.7.1         | Rev4         | Clinical Evaluation : A guide for manufacturers and notified bodies under directives  |
| 3.  | MEDDEV 2.12/2 Rev 2 | 2012         | Guidelines on post market clinical follow-up  |
| 4.  | MEDDEV 2.12/1 Rev 8 | 2013         | Guidelines on a medical devices vigilance system  |
| 5.  | EN 1041             | 2008-A1:2013 | Information supplied by the manufacturer with medical devices   |
| 6.  | EN ISO 15223-1      | 2016         | Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied - Part 1: General requirements (ISO 15223-1:2016)   |
| 7.  | EN ISO 14971        | 2012         | Medical devices - Application of risk management to medical devices   |
| 8.  | ISO 10993-1         | 2018         | Biological evaluation of medical devices — Part 1: Evaluation and testing within a risk management process  |
| 9.  | EN ISO 10993-5      | 2009         | Biological evaluation of medical devices - Part 5: Tests for in vitro cytotoxicity(ISO 10993-5:2009)  |
| 10. | EN ISO 10993-10     | 2013         | Biological evaluation of medical devices - Part 10: Tests for irritation and skin sensitization (ISO 10993-10:2010)   |
| 11. | EN ISO 10993-12     | 2012         | Biological evaluation of medical devices – Part 12: Sample preparation and reference materials (ISO 10993-12:2012)  |
| 12. | EN ISO 10993-18     | 2009         | Biological evaluation of medical devices — Part 18: Chemical characterization of materials (ISO 10993-18:2005)  |
| 13. | EN 62366-1          | 2015         | Medical devices — Part 1: Application of usability engineering to medical devices   |
| 14. | EN ISO 13485        | 2016         | Medical devices-Quality management systems-Requirements for regulatory purpose  |

|     |                |      |   |
|-----|----------------|------|---|
| 15. | EN ISO 11737-1 | 2018 | Sterilization of medical devices —Microbiological methods —Part 1: Determination of a population of microorganisms on products (ISO 11737-1:2018) |
| 16. | EN 14683       | 2019 | Medical face masks - Requirements and test methods  |
| 17. | ISTA 2A        | 2011 | Packaged-Products 150 lb (68Kg) or Less   |

## Chapter 5 BENEFIT-RISK ANALYSIS AND RISK MANAGEMENT

Risk management is performed per EN ISO 14971:2012, and the Risk management plan and report is given as attachments

- Folder 5# CE-01-0501, Risk management plan
- Folder 5# CE-01-0502, Risk management analysis
- Folder 5# CE-01-0503, Risk management report



## Chapter 6 PRODUCT VERIFICATION AND VALIDATION

The performances and characteristics of the device have been determined based on the intended purposes of the device, essential safety and performance requirements and the identified risks that might happen during the transport, storage and usage. Those factors and the verification result thereof are summarized in the following sections to provide evidence of conformity with the essential safety and performance requirements.

### 6.1 Biocompatibility test report

Product biocompatibility was evaluated according to EN ISO 10993-1. Based on the test results of type examination report for Medical Face Masks issued by competent authority, concerning cytotoxicity, irritation, and sensitization, it is concluded that the biocompatibility of the product is in line with essential safety and performance requirements from MDR.

- Folder 6# CE-01-0601 Product biocompatibility evaluation report.
- Folder 6# Biocompatibility Test Report

| Model | Report Name                       | Report No.    |
|-------|-----------------------------------|---------------|
| YMJ1  | In Vitro Cytotoxicity test report | CSTBR20030118 |
| YMJ2  | Skin Irritation test report       | CSTBR20030119 |
|       | Skin Sensitization test report    | CSTBR20030120 |
| YMJ3  | In Vitro Cytotoxicity test report | CSTBR20030115 |
|       | Skin Irritation test report       | CSTBR20030116 |
|       | Skin Sensitization test report    | CSTBR20030117 |

The test results meet the requirements of ISO 10993-1 and have good biocompatibility.

### 6.2 Product performance test report

Physical and chemical performance have been tested per product specification

| Model                | Report Name                       | Report No.    |
|----------------------|-----------------------------------|---------------|
| YMJ1<br>YMJ2         | Bioburden Test                    | CSTBB20030346 |
| YMJ3                 | Bioburden Test                    | CSTBB20030348 |
| YMJ1<br>YMJ2<br>YMJ3 | EN 14683 Product performance test | CP-20200309   |

- Test Requierments

|           |  |
|-----------|--|
| Dimension | The size of the mask should meet the design requirements with an allowable tolerance of 5% |
|-----------|--|

|                                       |  |
|---------------------------------------|--|
| Appearance                            | The appearance of the mask should be smooth, without damage, stains, deformation and other obvious defects.  |
| Nose piece                            | The mask should be equipped with a nose piece, which is made of flexible materials and should be no less than 8.0cm in length.   |
| Elastic bands                         | The Elastic bands should be elastic and suitable, the rupture strength of the mask belt and the connection between the mask belt and the mask body should be no less than 10N. |
| Bacterial filtration efficiency (BFE) | ≥98%   |
| Differential pressure                 | < 40 Pa/cm <sup>2</sup>  |
| Microbial cleanliness                 | ≤30 cfu/g  |

### 6.3 Usability evaluation report

The hazards and hazardous situation related to the usability have been taken into consideration during risk management process, and the mitigation measures are documented in risk management file.

Usability engineering of the device is conducted according to EN 62366 and the result is documented in Usability Evaluation Report.

Refer to the following reports for the scenarios tested.

- Folder 6# CE-01-0602-01 Usability check list
- Folder 6# CE-01-0602-02 Usability evaluation report.

### 6.4 Packaging aging and Transportation evaluation reports

Product package:

| Packing type  | Material | Specification   |
|---------------|----------|---|
| Inner package | PET+PE   | YMJ1: 18.5*10*7.5<br>YMJ2: 16*10*7.5<br>YMJ3: 20*16*6.5 |

|           |                       |  |
|-----------|-----------------------|--|
| Outer box | Double corrugated box | YMJ1: 50*39*32<br>YMJ2: 52*34*32<br>YMJ3: 62*34*35 |
|-----------|-----------------------|--|

The processes will be revalidated if changes are made to the equipment, product, packaging materials or packaging processes and etc., which compromise the original validation and affect the safety or efficacy of the products. Annual revalidation or reviews will also be performed and documented to evaluate the efficacy of the previous validation result.

- Folder 6# Packaging and Transportation Validation Report

| Report Name                                    | Report No.   |
|--|--------------|
| Packaging and Transportation evaluation Report | 50353611 001 |
| Medical Face Masks validity validation Report  | ER-PD-001-00 |

## Chapter 7 Clinical Evaluation

Since the evaluated products, Medical Face Masks are traditional low risk medical device and sold & used over decades, its Risk-Benefit-Evaluation is demonstrated through long time device using experiences.

The products' performance and safety is also guaranteed through specific design following relevant standards requirements, bench testing, and the implementation of quality management system.

For applied products, through the comprehensive clinical literature databases and post manufacturing experience, it is found that no new clinical risks are generated yet.

For example, Internet sides and homepages, and literature

- <http://www.ncbi.nlm.nih.gov/pubmed/> US National Library of Medicine National Institute of Health

the non-woven face masks, manufactured under the observed controlled conditions as described in intended use and the IFU, are safe in the field of healthcare personnel and no risk above the acceptable level are introduced by them.

Therefore, the Medical Face Masks are considered to be acceptable for Risk-Benefit-Evaluation since both effectiveness and safety are deemed to be acceptable.

Please refer to folder 7 # CE-01-0701 for Clinical Evaluation Report.

## Chapter 8 POST-MARKET SURVEILLANCE

Post-market surveillance is performed per MDR (EU) 2017/745 and MEDDEV 2.12 1/2, and the Post-market surveillance plan and report is given as attachments

- Folder 8 # CE-01-0801, PMS plan