

Ultra clean cold chain dry filling system
Hydrogen peroxide dry sterilization process
was used

CHARACTERISTICS OF ULTRA CLEAN COLD CHAIN DRY STERILIZATION PROCESS

- The processing flow of packaging materials is anhydrous.
- Gaseous form of sterilization, not only has high sterilization intensity, but also the inner and outer surface of the package material is fully covered, even contact, without any sterilization dead angle.
- Gaseous hydrogen peroxide has low corrosiveness, a broad spectrum of sterilization, and is not easy to form microbial tolerance.
- The gaseous hydrogen peroxide can be decomposed into water and oxygen, which is non-toxic and environmentally protected.
- The combination of blowing irrigation and rotation can be adopted, and the equipment structure is compact, and the maximum site utilization can be realized. It can also avoid secondary air pollution and improve bottle cleanliness from the source of the process.
- Process monitoring: store all process steps and record production process data; reserve interface, which can access MES production management system.



FUNCTIONAL PRINCIPLE

Summary:

The ultra-clean cold chain dry filling includes four steps: bottle sterilization, bottle drying, filling and capping.

Bottle sterilization:

The inside and outside of the bottle are sterilized by vaporizing hydrogen peroxide: the hydrogen peroxide stock solution and compressed air are atomized and passed into the evaporation cylinder for mixed evaporation, and then the hot air is sent into the sterilizer to sterilize the bottle. The system is equipped with multi-point temperature, pressure and flow monitoring measures, and the vaporization accuracy error is less than $\pm 0.5\%$, which ensures the stability and reliability of sterilization effect.

Bottle drying

The sterilized bottle is dried by hot air to reduce the residue of hydrogen peroxide and promote the decomposition and sterilization of hydrogen peroxide.

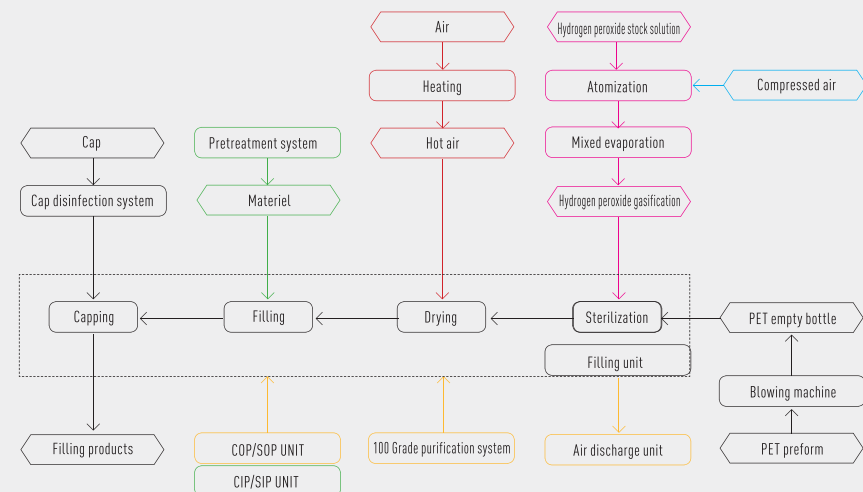
Filling:

The sterilized product is filled into a sterilized bottle. Special filling system can be selected for different products, which not only ensures the sanitary conditions, but also ensures the precision of filling. In order to ensure that the product materials are not polluted by the external environment during the filling process, the filling machine is designed as a closed

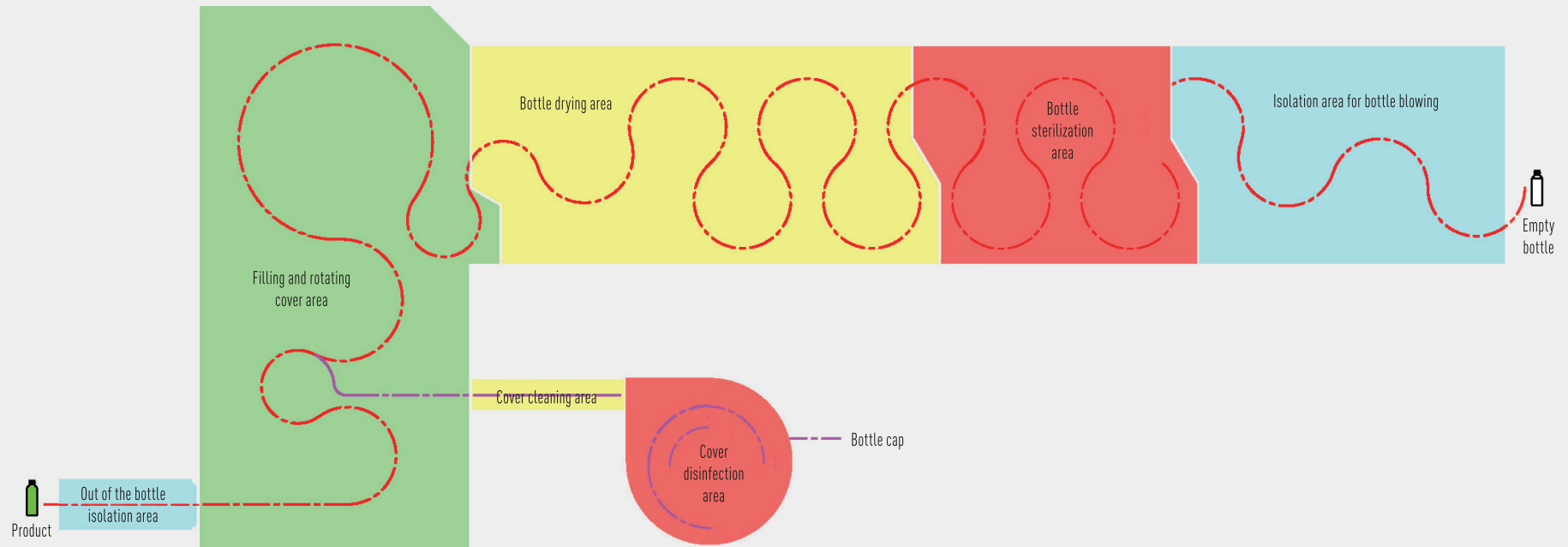
and independent space, and the internal space is pressurized to prevent the external space from being polluted.

Capping:

Cover sterilization can choose hydrogen peroxide dry gas sterilization or spectrum sterilization. After sterilization, the bottle cap is rotated by the capping machine.



TECHNICAL PARAMETER



Applicable products:

All kinds of cold chain products (yogurt, fresh milk, NFC juice, etc.)

Mineral water without ozone

Filling speed:

3000 ~ 36000 BPH

Bottle type:

Diameter or square bottle diagonal 50-108 mm, height 130-280 mm

Cap type:

Plastic flat screw cap

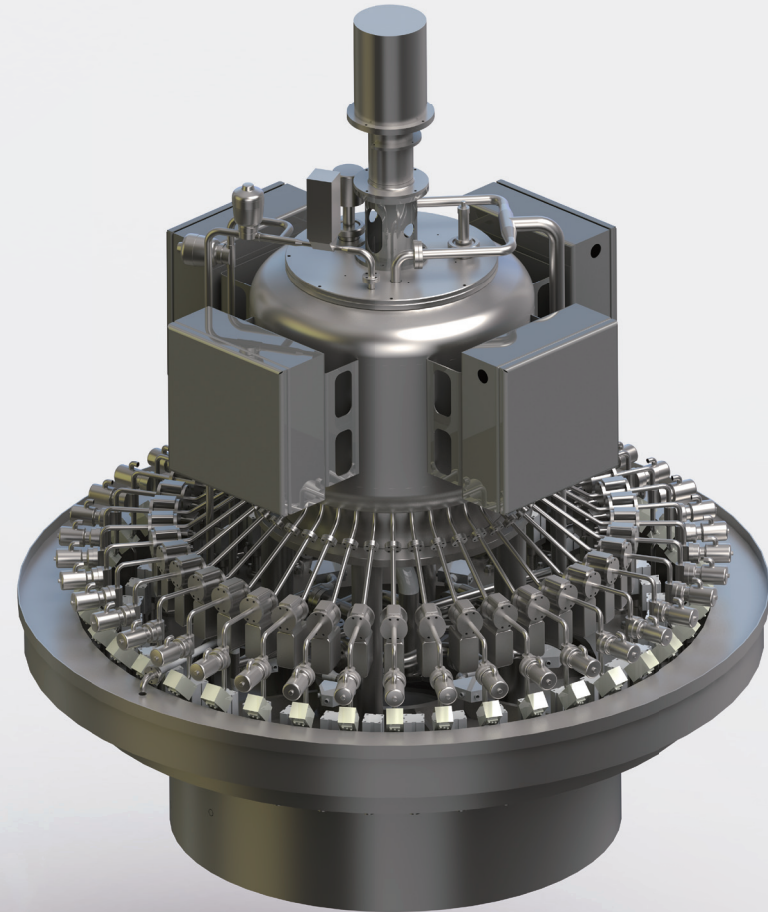
Filling temperature:

4-6°C (cold chain products)

Normal temperature (mineral water without ozone)

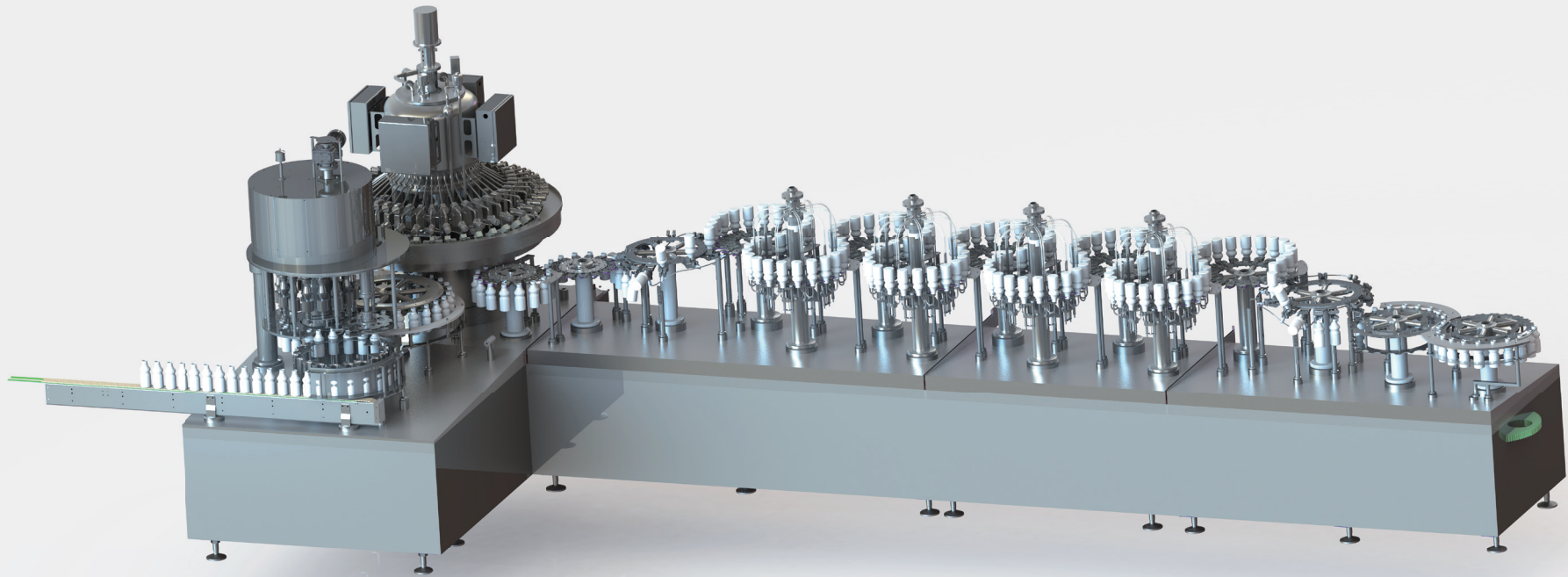
FILLING MACHINE

- Adopting a non-contact quantitative filling structure design, the structure is simplified, the wearing parts are less, and the product flow channel is more sanitary.
- Non-contact filling, no risk of wear particles pollution of bottle mouth and seal.
- Quantitative filling, strong anti-interference ability and high filling precision.
- The use of liquid seal isolation, good sealing performance, is conducive to the establishment and maintenance of class 100 environment.
- 316L and EPDM meeting FDA's food safety requirements are used as the materials of parts contacting with the product, which makes the product more hygienic and safer.
- The control unit is isolated from the inside and outside of the filling environment, which makes the filling environment more sanitary and convenient for cleaning.
- The automatic false cup system is adopted to reduce the cleaning and disinfection time of the equipment and improve the operation efficiency of the equipment.



OTHER CONFIGURATIONS

- The fully enclosed enclosure is conducive to maintain class 100 environmental sanitation and is not affected by the outside world.
- Each functional area is isolated to reduce the volume of high-level space, which is conducive to the establishment and maintenance of high-level clean space.
- Centralized treatment of disinfection waste gas, safe and reliable, environmental protection and health.
- The sterilizer adopts the upper liquid distributor, combined with the top design of hydrogen peroxide evaporation cylinder, to reduce energy consumption.
- The distributor adopts mechanical slotted jet control, with a simple structure and convenient maintenance.
- The inner part of the capping machine adopts full water washing structure to ensure the environmental sanitation and reliability.



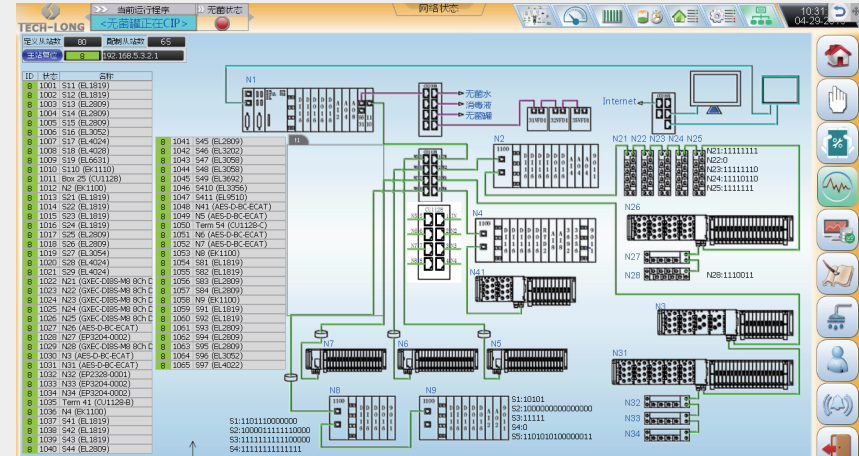
6 / Ultra clean cold chain dry filling system

CONTROL SYSTEM AND DATA PROCESSING



Control system

- All the super clean units are collected in the upper computer for centralized monitoring.
- The flow status chart shows that it can automatically judge whether the over net establishment process meets the production requirements.
- Alarm centralized classification monitoring, for different alarm levels to give the corresponding operation tips.
- Centralized display of valve status and alarm, intuitive understanding and monitoring of valve status.
- Real-time monitoring of network status, alarm when network or module failure occurs, and quickly locate the fault point.
- IE remote browsing access, in the office can understand the monitoring of the production site.



Data processing

- Ethernet communication is used between all super clean units to exchange data, and important data are collected and recorded in a centralized way.
- Real-time monitoring super clean status, recording the data of the whole production process.
- Record each operation process to trace whether the previous operation meets the requirements.
- Production data intelligent collection and storage, reduce useless data, convenient and fast query.
- Data records can be classified and saved, and can be browsed online or exported to tables.
- Data storage space can store more than one year of data.

TECH-LONG PACKAGING MACHINERY CO., LTD.

HEADQUARTERS & MANUFACTURING BASE - GUANGZHOU

No. 23 Yunpu 1 Road, Huangpu District, Guangzhou, 510530, China
Tel: +86-136 2222 0030 [Same No. for Wechat]
E-mail: market@tech-long.com

Tech-Long Packaging Machinery India Private Limited.

B – 503, Fifth Floor, Aaryavrat Skies Behind Bikanerwala, Azad Society,
Nehrunagar Ahmedabad India – 380015

Tech-Long Africa Branch

Bole kfil Ketema, kebele 03/05 House No.2392 A.A at the back of
Millennium Hall, Addis Ababa, Ethiopia

Sure Technologies FZC

Po Box 9192, Saif Zone, Sharjah, UAE

PT. Mandiri Starplast

Kawasan Ecopolis Citra Raya, Ruko Evergreen K32/69, Tangerang –
15710, Banten, Indonesia

Beijing Office

10-2-301, Longhu Shidai Tianjie East Area, Biological Medicine Base,
Daxing District, Beijing, China

Chengdu Office

Beihuguojicheng Phase III, No. 8 Huxiu 2nd Road, Chenghua District,
Chengdu City



WeChat Official Account



Douyin Short Video



Weishi Short Video



Facebook



YouTube



Twitter

Stock Code **002209**

These materials are from the Marketing Department of T Tech-Long. Their content will change with product updates. For details, please don't hesitate to contact our salesmen. Although these materials have been calibrated repeatedly for accuracy, they are for reference only. The physical products, name plates and manuals shall prevail.

For more information about Tech-Long's products, welcome to visit our website:

www.tech-long.com

©All rights reserved. Reproduction in whole or in part is forbidden without the express permission of the publisher.