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Intelligent Science, Selecting X-imaging
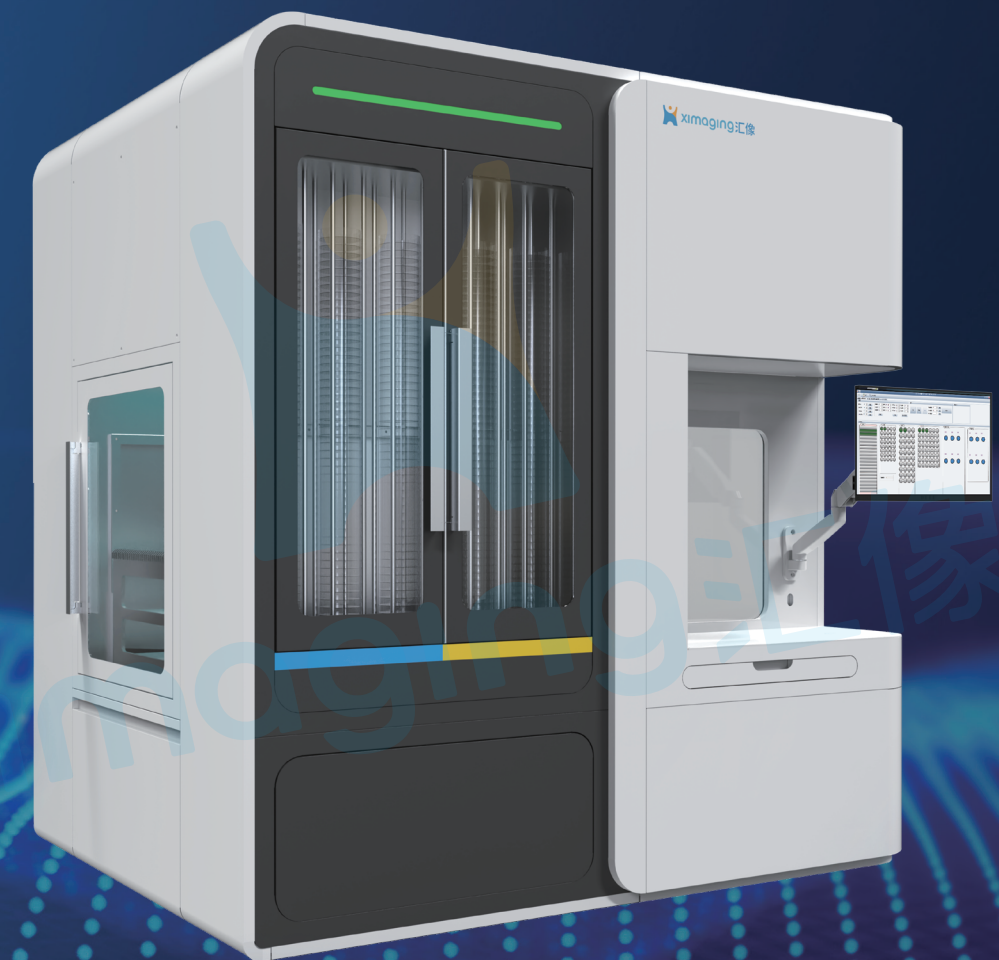
HarlakX

Intelligent Microbial Testing Preparation System

Homogenized bag input, Petri dish output
One-stop microbial testing Preparation

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Technical Support

X-imaging Technology

X-imaging is an AI company which focuses on life science, applied chemical and microbiology. X-imaging devotes to intelligent automated products and solutions for food, pharmaceutical, environmental, clinical diagnosis and testing industries. X-imaging originated from AI and SciX and it also has the artistic conception that science beauty is achieved by AI. X-imaging is also one of the earliest company which transfers the robot scientist from concept into reality.
As specialized and sophisticated enterprise and high-tech company of artificial intelligence area as well as the member of China Biology Facilities and Biological Standardization Committee, X-imaging has established AI and Digital Product R&D Center, Automatic Product R&D Center, Applied Product R&D Center and solutions. X-imaging can supply full service to customers from technology, products and solutions .

X-imaging owns the value of simplicity, honest, altruism and open mind of innovation, concentration, win-win. X-imaging devotes to establish the symbiosis and prosperity of cooperative partner system with customers. X-imaging insists on original aspiration and mission that science beauty is achieved by AI. X-imaging devotes to a great company which has social responsibilities and can be trusted by cooperators and customers. X-imaging AI scientist will go into every laboratory to assist the scientist to accomplish different kind of scientific research activities such as pharmaceutical research, biological manufacture, energy chemicals and disease diagnosis etc. X-imaging will promote the development of knowledge visualizaton and innovation intelligentization. X-imaging will energize the development of global science and technology, science industry.

Intelligent science, selecting X-imaging. X-imaging Technology is your best cooperator in AI era.

Our vision

X-imaging shall be the global leading supply of life science automation and intelligent solution. X-imaging wishes everyone can enjoy a healthy, safe and high quality life in the world. X-imaging promises to supply high standard technologies, products and services to the world.

High Technology Enterprise
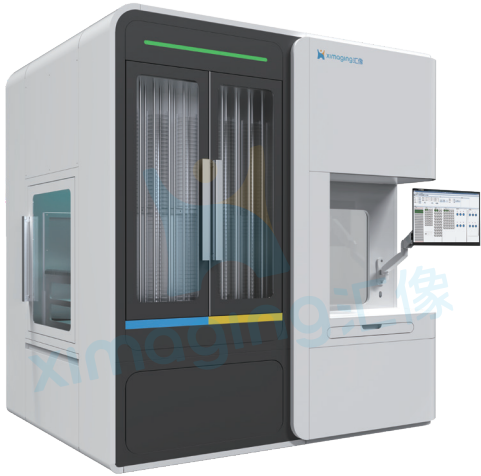
Specialized and
Sophisticated Enterprise

Customers

HarlakX Intelligent Microbial Testing Preparation System

HarlakX Intelligent Microbial Testing Preparation System is designed according to GB4789 series of national standards. The process of plate pouring and spreading automation of routine microbial quantitative detection can be fully achieved. The system is researched by X-imaging and the foundation is automated module components. The process such as QR code scanning of sample homogenized bag, initial suspenison preparation, gradient dilution, spreading and pouring innoculation, coding etc can all be automated. More than 4 testing items can be completed at the same time (3 pour, 1 spreading).

The testing items can be matched freely. The number of channels can be set according to the requirements. The operation of the process supports the log management and all testing data can be traced. 2-3 operators can be saved for the testing. The efficiency and testing results quality will be improved.

HarlakX 500

One-stop
Microbial Testing Preparation

Application

Food
- Food safety law
- National Food Safety

Pharmaceutical
- GMP regulations
- Chinese Pharmacopoeia

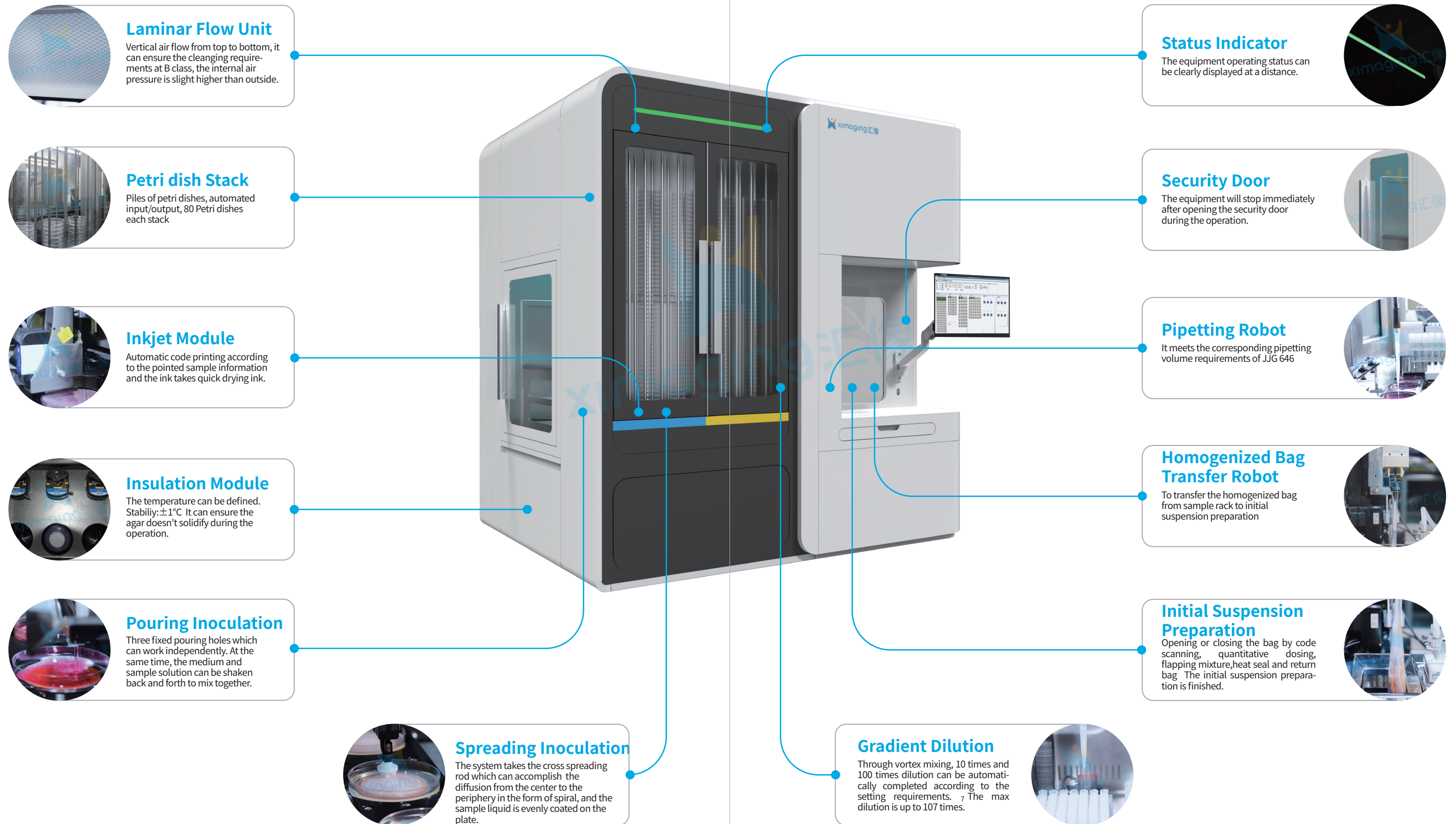**Drinking water**
- Water law
- Standards for Drinking Water Quality

Cosmetics
- China Cosmetic Supervision and Administration Regulation
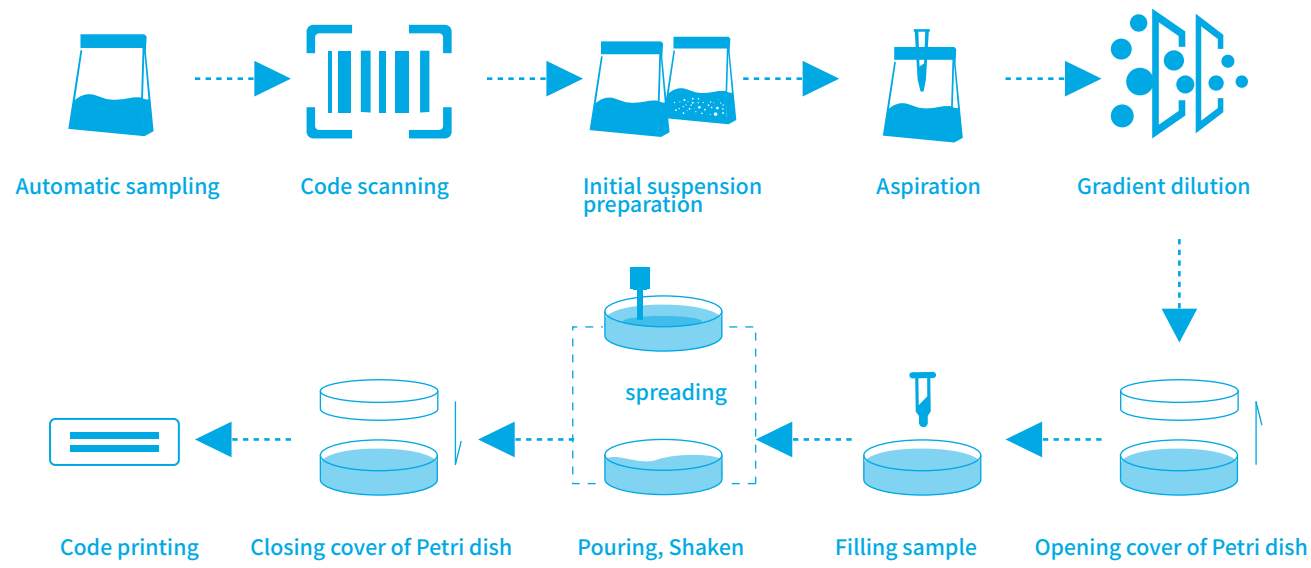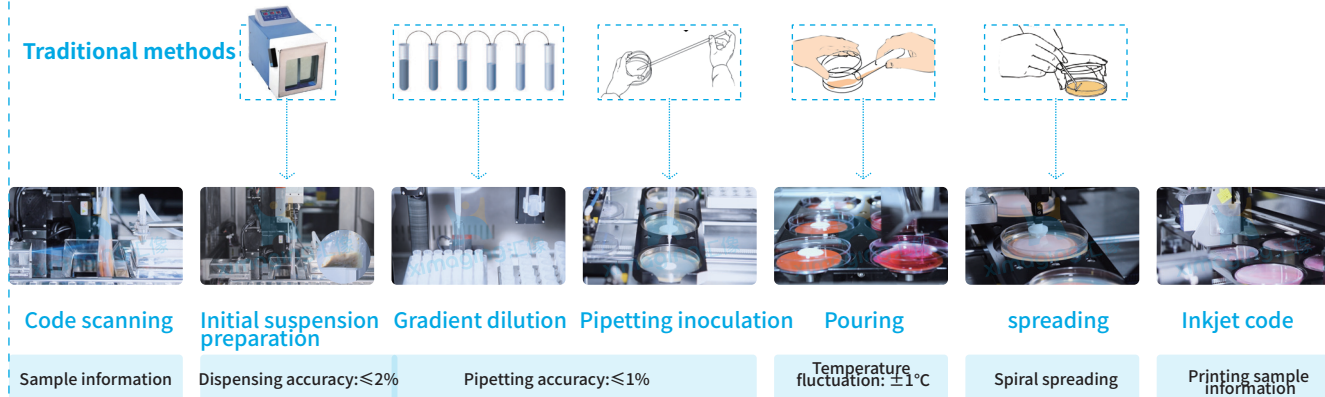- Safety and Technical Standards for Cosmetics

Functional modules

Laminar Flow Unit
Vertical air flow from top to bottom, it can ensure the cleanging requirements at B class, the internal air pressure is slight higher than outside.

Petri dish Stack
Piles of petri dishes, automated input/output, 80 Petri dishes each stack

Inkjet Module
Automatic code printing according to the pointed sample information and the ink takes quick drying ink.

Insulation Module
The temperature can be defined. Stabiliy:±1°C It can ensure the agar doesn't solidify during the operation.

Pouring Inoculation
Three fixed pouring holes which can work independently. At the same time, the medium and sample solution can be shaken back and forth to mix together.

Spreading Inoculation
The system takes the cross spreading rod which can accomplish the diffusion from the center to the periphery in the form of spiral, and the sample liquid is evenly coated on the plate.

Status Indicator
The equipment operating status can be clearly displayed at a distance.

Security Door
The equipment will stop immediately after opening the security door during the operation.

Pipetting Robot
It meets the corresponding pipetting volume requirements of JJG 646

Homogenized Bag Transfer Robot
To transfer the homogenized bag from sample rack to initial suspension preparation

Initial Suspension Preparation
Opening or closing the bag by code scanning, quantitative dosing, flapping mixture,heat seal and return bag The initial suspension preparation is finished.

Gradient Dilution
Through vortex mixing, 10 times and 100 times dilution can be automatically completed according to the setting requirements. The max dilution is up to 107 times.

Technical analysis

Work flow

Automatic sampling → Code scanning → Initial suspension preparation → Aspiration → Gradient dilution

Code printing ← Closing cover of Petri dish ← Pouring, Shaken ← Filling sample ← Opening cover of Petri dish

spreading

Traditional methods

Code scanning | Initial suspension preparation | Gradient dilution | Pipetting inoculation | Pouring | spreading | Inkjet code

Sample information | Dispensing accuracy:≤2% | Pipetting accuracy:≤1% | Temperature fluctuation: ±1°C | Spiral spreading | Printing sample information

Product features

Multi-type food microbial detection methods: Total number of colonies, Staphylococcus aureus, etc.

Standardization
It is highly consistent with National Food Safety Standards and is tested in full accordance with the testing standard process.

Wide application
It can complete the related items testing of microbial plate spreading method and pouring method.

High efficiency
20 samples/batch, 210 samples/24h, 280 items/8h

Scalable
It mainly uses general consumables and can be connected to three-party devices.

Measurement traceability
Volume, temperature can be calibrated, noise, air speed, settling microbe, airborne microbe can be detected.

Safety
The safety of full protection systems of structural, electrical and software, samples and operators

Conformity
It is complied with GMP, accreditation and evaluation standards, ISO 17025 and other relevant provisions.

Information traceability
It supports label printing and code scanning to achieve traceability of sample inoculation.

Innovation patents

Software Function

The customer can define the detection method in the system.The system also has equipment management, method management, sample management, media management, log management, user management and other functions. The graphical interface is easy to understand and quick to use. The whole system improves the efficiency of microbial Preparation and it accomplishes the traceability and standardization of information.
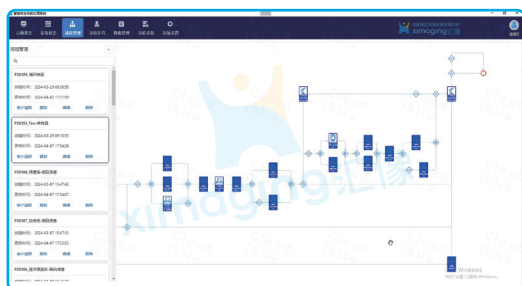
Flexible methods which can be defined

- Customized testing parameters
- Customized sample matrix
- Customized medium
- Customized testing project

Operation information traceability

- The record of sample testing can be traced.
- The operation record can be traced.
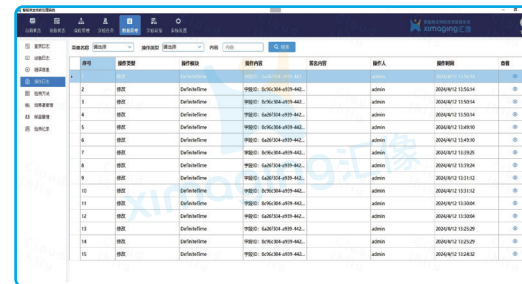- The record of equipment operation can be traced.

Compatible and scalable

- To support module replacement
- It supports free combination of process action.
- Low context process editing
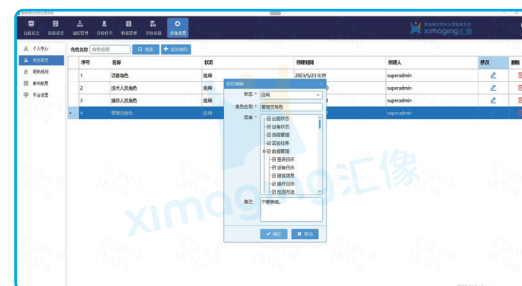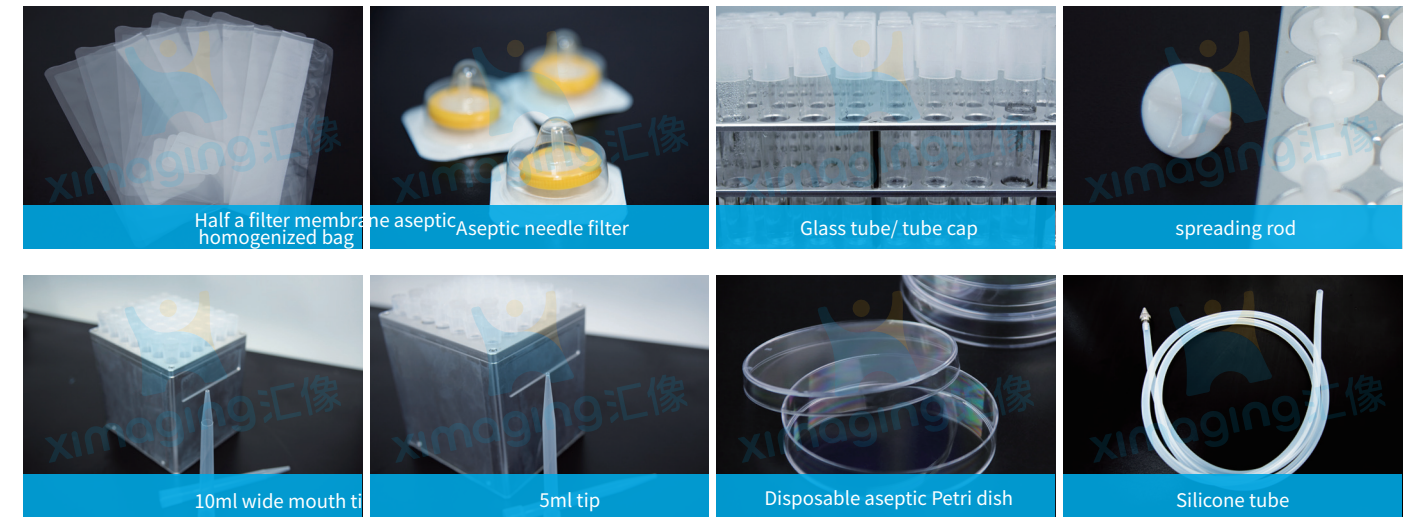- It is compatible to different kinds of testing methods.

Safe and reliable equipment

- Equipment maintenance alert
- Error or falut
- Real-time monitoring of moduel status
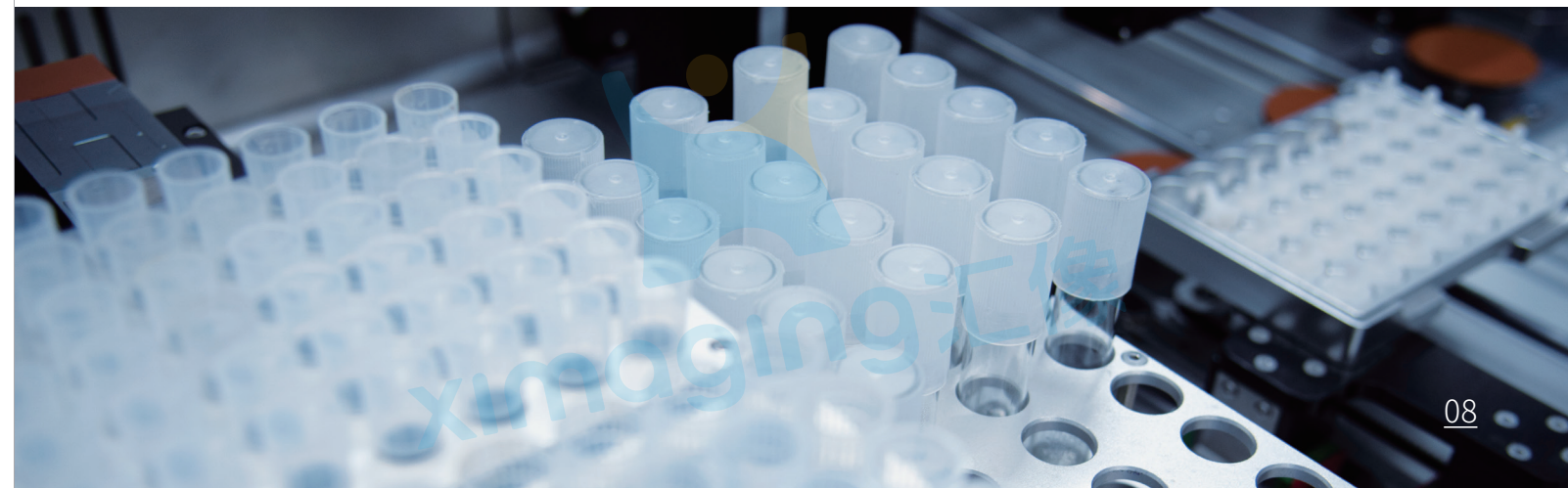- Comply with GMP requirements
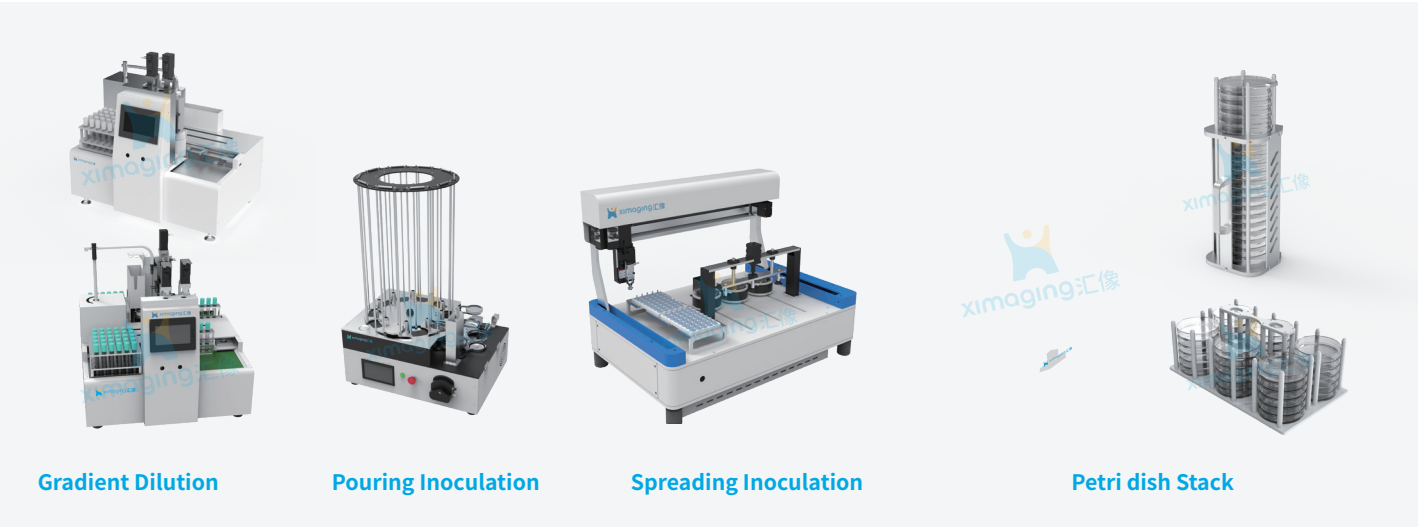
Consumables/Accessories

Consumables

Half a filter membrane aseptic homogenized bag	Aseptic needle filter	Glass tube/ tube cap	spreading rod
10ml wide mouth tip	5ml tip	Disposable aseptic Petri dish	Silicone tube

Accessories

Sample rack	Tube rack	Tip case	spreading rod casea
Tip capture case	Homogenized bag capture case	PP bottle	spreading rod capture case

Instrument Parameters

型号	HarlakX 500
Dimension WDH	2200mm×1650mm×2300mm (检修预留空间600mm, 顶部预留空间至少200mm)
Power	Single phase three wire, Voltage:220V; current:32A; 功率:7000W左右
Gas	0.5-0.7MPa
Environmental requirement	Cleaning area over class C
Sample capacity	20 samples each batch
Pipetting accuracy	1ml capacity allows error:±1%, maximum aspiration 10ml
Peristaltic pump dispensing accuracy	225ml capacity tolerance error: ±2%
Petri dish max capacity	480 dishes each batch
Sample processing speed	Solid samples will be operated in parallel with 2 gradients for an average of 6.5min/ sample (The time may be increased or decreased according to the experimental process.)
Sample recognition function	The QR code on the homogenized bag can be automatically recognized to determine the experimental process that needs to be performed on the current sample.
Initial suspension preparation function	Slap and mix the initial suspension of the sample 7
Gradient dilution function	Through vortex mixing, 10 times and 100 times dilution can be automatically completed according to the setting requirements, and up to 107 times dilution can be completed.
Spreading function	The special spreading rod is used to ensure that the sample liquid is evenly coated on the surface of the solid medium.
Medium pouring function	Three fixed pouring ports can work independently.At the same time shake positive and negative mixing medium and sample, the medium volume, adding sample amount, parallel can all be set according to requirement.
Medium	Tubing is easily disassembled for sterilization.
Petri dish coding function	The petri dish is automatically sprayed with QR code, and the information will be customized.
Cleaning function	The top layer of the equipment is equipped with a laminar flow hood to ensure the cleanliness requirements of the internal Class B and the internal air pressure is slightly higher than the external.
UV lamp disinfection function	Built-in UV lamp (including ozone) for the internal surface of the equipment disinfection
Homogenized bag heat seal function	The mouth of the homogenized bag can be heat-sealed after patting and mixing.
Software interface	Graphical interface, easy to operate and learn
Software function	Including sample management, medium management, method management, equipment management, user management, work log recording etc.
External interface	It provides the interface with the database management system to accomplish the input and output of data between the database and the workstation.
Environmental control	The top layer of the equipment is equipped with a laminar flow hood to ensure the cleanliness requirements of the internal Class B, and the internal air pressure is slightly higher than the external. UV lamp (including ozone) for equipment surface disinfection

Modular Combination Extension Application Example

Gradient Dilution　　**Pouring Inoculation**　　**Spreading Inoculation**　　**Petri dish Stack**

To accomplish the gradient dilution of samples, pouring inoculation, and plane stacking automation

Application scenarios

- Lactic acid bacteria count in food
- Total number of colonies, coliform and mold in food
- The total number of colonies count in water quality
- Total number of colonies and mold count in cosmetics
- The total number of aerobic bacteria and fungal yeast in the drug

Intelligent microbial pouring inoculation system

Intelligent microbial gradient dilution system

Pre-processing automation for drug/microbiological limit testing

- **Modularity:** Configure function modules according to detection method requirements
- **Standardization:** To design according to Chinese Pharmacopoeia and GMP requirements
- **Human sample separation:** To reduce cross contamination
- **High throughput:** About 250 samples/day testing volume
- **Automation:** Sample batches input, automatic output to be cultured samples

Automatic pouring inoculation module

Automatic pipetting module

Automatic gradient dilution module

Automatic robotic transfer module

Automatic initial suspension preparation

Shelf for glass bottle

Shelf for testing tube

Automatic tube inoculation module

Automatic pipetting module

Automatic glass bottle inoculation module