

 **HM PHARMACHINE SWISS GMBH**
 **HM PHARMACHINE CHINA LTD.**



LABORATORY
INSTRUMENTS & PROJECT



HM PHARMACHINE is the professional pharmaceutical (laboratory) engineering and machine (instrument) manufacturing group, including two parts:

HM Pharmachine Swiss GmbH. provides Europe technology and Swiss brand.

- a. Europe GMP experts are in charge of conceptual design and project instruction, matches up **EU cGMP, USA FDA, WHO GMP, UK MHRA, Australian TGA**, etc.
- b. Europe engineers instruct machine engineering and qualification Documents, according with Europe standard and getting **CE** certificate.
- c. All HM machines are manufactured according to Europe standard, under the authority of HM Pharmachine Swiss GmbH. with registered brand in Swiss.

HM Pharmachine China Ltd. registers capital \$2 million, more than 6000m2 modern factory and 1000m2 top grade office, mainly manufacturing:

- a. Clean room panel, door, window and accessory facilities;
- b. Preparation tank, storage tank, automatic medicine solution preparing system, automatic medicine solution distribution system and accessory facilities;
- c. Filling and sealing machine, CIP/SIP system, and other machines (instruments).

So, HM PHARMACHINE combines **Swiss Technology** with **China Manufacturing** advantage, providing **High Quality, Economical, Professional pharmaceutical (laboratory) turn-key project** And **whole Set of machines (instruments)**.

HM PHARMACHINE focuses in:

- Pharmaceutical Turn-key Project (EPC) & Machines;
- Laboratory Turn-key Project (EPC) & Instruments;
- Clean Room & HVAC Project;
- Water Treatment Plant & Sanitary Piping Project.

With more than 10 years professional experience, HM PHARMACHINE has over 5000 sets of machines and various project references in about 50 countries all over the world.

With **Complete Professional Project Team** and **Successful Project Experience**, HM PHARMACHINE is accepted as reliable project partner!



HM PHARMACHINE CHINA LTD.

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HM can also provide international famous brand laboratory instruments & equipment, according to customers' requirements.



H_{Health}

**Swiss Technology,
China Manufacturing**

瑞士技术，中国制造

CHROMATOGRAPH



HM L-HPLC-W High Performance Liquid Chromatograph

Usage: Using UV scanning through the chromatography technology which allows a very small sample to determinate the assay of organic substances.

Features: Reliable and stable injection and detection system. Perfect liquid chromatograph configuration supplies multiple selections. Optional configuration: high pressure pump, semi-preparation pump, binary high pressure gradient system, quaternary low pressure gradient system, differential detector, diode array detector, automatic sample injector and so on.

Technical parameters:

- Mini. detection concentration: 5×10^{-9} g/ml
- Qualitative reproducibility: $RSD_s \leq 0.1\%$ (Benzene/methanol standard sample)
- Quantitative reproducibility: $RSD_s \leq 0.3\%$ (Benzene/methanol standard sample)



HM L-GC-T Gas Chromatograph

Usage: To evaluate volatile compounds like fatty acid compounds, essential oil (volatile oil) etc. based on the principle involves separation of components of the sample under test due to partition in between gaseous mobile phase and stationary liquid phase. The components partitioned into gas come out first while other comes later.

Features: Versatility, 3 injector positions and 3 detector positions, dual column analysis. FID, TCD, ECD, FPD, NPD, PID, micro TCD are for your reference.

Technical parameters:

- FID: $\leq 5 \times 10^{-12}$ g/s (n-hexadecane)
- TCD: 10,000 mV-mg (n-hexadecane)
- ECD: $\leq 3 \times 10^{-14}$ g/ml (BHC)
- NPD: $\leq 5 \times 10^{-12}$ g/s (azobenzene); $\leq 5 \times 10^{-13}$ g/s (malathion)
- FPD: $\leq 1 \times 10^{-10}$ g/s (methyl S parathion); $\leq 1 \times 10^{-11}$ g/s (methyl P parathion)
- PID: $\leq 5 \times 10^{-12}$ g/ml



HM L-IC series Ion Chromatograph

Usage: With standard double river road system, HM L-IC300D Double-flow Ion Chromatograph can realize the anion and cation detection simultaneously, and can be selected many kinds of detector and automatic injection system.

Features: Advanced big screen technology and accurate temperature control design. High capacity, many kind of ion chromatographic column can realize the conventional ions, disinfection by-products, organic acids and other components of the analysis.

Technical parameters:

- Maximum pressure: 35Mpa,
- Pressure display accuracy: ≤ 0.1 Mpa;
- Flow: 0.001~5.000mL/min, $RSD < 0.1\%$
- Output voltage: ± 6000 mV adjustment
- Detection: 0~35000us/cm (10 grades available); ≤ 0.0020 ns

SPECTROPHOTOMETER



HM L-SP-V series Visible Spectrophotometer

Usage: Molecules containing π -electrons or non-bonding electrons (n-electrons) can absorb the energy in the form of ultraviolet or visible light to excite these electrons to higher anti-bonding molecular orbitals. HM L-SP-V series Visible Spectrophotometer is routinely used in analytical chemistry for the quantitative determination of different analytes.

Features: Particular optical system, high-performance holographic grating and receiver, ensure excellent performance index of the apparatus. Automatic adjustment with 0%T and 100%T, it is more convenient to set wavelength by hand. It has a parallel printing port, connecting with the printer directly to print data.

Technical parameters:

- Optical system: Single beam, 1200 piece/mm;
- Wavelength range: 320~1000nm;
- Spectrum bandwidth: 4nm;
- Minimum resolution wavelength: 0.1nm / 0.5nm;
- Wavelength accuracy: $\pm 1\text{nm} / 2\text{nm}$;
- Transmittance accuracy: $\pm 0.5\%$ T.



HM L-SP-UV series UV & Visible Spectrophotometer

Usage: HM L-SP-UV series UV & visible spectrophotometer is routinely used in analytical chemistry for the quantitative determination of different analytes. It is used to identify drug, also for purity and assay determination.

Features: Particular optical system, high-performance holographic grating and receiver, ensure excellent performance index of the apparatus. Automatic adjustment with 0%T and 100%T, it is more convenient to set wavelength by hand. It has a parallel printing port, connecting with the printer directly to print data. Excellent system functions, it can control the switch of deuterium lamp and tungsten lamp alone. It also can achieve automatic calibration with wavelength and dark current, improving accuracy of tests.

Technical parameters:

- Optical system: Double / Single beam, 1200 Piece/mm;
- Diffraction grating, 190~1100nm / 200~1000nm;
- Spectrum bandwidth: 0.5, 1, 2, 4, 5nm;
- Wavelength accuracy: $\pm 0.3\text{nm} / 0.5\text{nm} / 1\text{nm} / 2\text{nm}$;
- Repeatability of wavelength: $\leq 0.1\text{nm} / \leq 0.2\text{nm}$.



HM L-FRS series Fluorescence Spectrophotometer

Usage: It is a type of electromagnetic spectroscopy which analyzes fluorescence from a sample and satisfies qualitative and quantitative analysis in material research, medicine analysis, biology and clinic examination, water quality analysis and control, food safety detection (dairy products, vitamin C, selenium, aflatoxin) and other fields.

Features: High sensitivity, high scanning speeding, new software analysis small dimensions, compact structure, high detection sensitivity, fast scanning speed, wide range of spectral measurement, large detection dynamic range and fast 3-D scanning.

Technical parameters:

- Excitation/emission: 200~900nm / 360~650nm
- Accuracy: $\pm 0.4\text{nm} / 1\text{nm} / 2\text{nm}$;
- Repeatability: $\leq 0.2\text{nm} / \leq 0.5\text{nm} / \leq 1\text{nm}$;
- Bandwidth: 2nm, 5nm, 10nm, 20nm;
- Sensitivity: Raman peak of water $S/N \geq 200 / 150$.



HM L-FTIR-G FT-IR Spectrometer

Usage: HM L-FTIR-G FT-IR Spectrometer is used to gather information about compound's structure, assess its purity, and sometimes to identify it. Infrared radiation is absorbed by organic molecules and converted into energy of molecular vibration, either stretching or bending. Different types of bonds, and thus different functional groups, absorb infrared radiation of different wavelengths.

Features: HM L-FTIR-G FT-IR spectrometer is a single-beam FT-IR spectrometer. Easy to Operate. Powerful Software. Easy Sample Preparation. USB Interfacing. High stable optical system, excellent performance, powerful function, intelligent operation, convenient maintenance, fast scanning, high accuracy and so on.

Technical parameters:

- Spectral Range: 4000~400 cm^{-1}
- Resolution: 1.5 cm^{-1}

> SPECTROPHOTOMETER



HM L-FLS-J Flame Spectrophotometer

Usage: HM L-FLS-J Flame Spectrophotometer is a device for measuring light as it interacts with or is emitted by atoms to determine the chemical makeup of substances.

This instrument is used for analyzing & measuring the assay & concentration of elements (K, Na, Li, Ca, Ba).

Features: K & Na filters & air-compressor as standard accessories. Li, Ca, Ba filters as optional accessories. Dual channel & 4 digital LED display. Unique ignition path & keyboard operate. Electronic flame failure detection. Fine & coarse sensitivity controls. Operates on L.P.G supply.

Technical parameters:

- Range: K, Na, Li 0-999.9;
- Sensitivity: K, Na 0.2 µg/ml;
- Linearity: K 0.2 µg/ml, Na 0.7 µg/ml;
- Reproducibility: 3%.

> BALANCE & SCALE



HM L-BA-I/II Precision Analytical Electronic Balance

Usage: To measure small amounts of substances to the highest degree of accuracy.

Features: A high quality laboratory analysis balance, high precision, weighing express, accurate, reliable and functional.

Technical parameters:

- RS-232C interface;
- Max. capacity: 210g / 510g;
- Readable: 0.1mg / 1mg.



HM L-BA-III Precision Electronic Balance

Usage: To measure small amounts of substances to the higher degree of accuracy.

Working principle: When the object is placed in the pan, the pressure applied to the sensor, the sensor is deformed, so that the impedance changes, and changes with the excitation voltage, the output analog signal of a change. The signal is amplified by the amplifier output to the ADC. Facilitate the processing of converting the digital signal output to CPU operation control. CPU keyboard commands, and procedures based on this kind of output to the monitor.

Features: free installation, high precision, weighing express, accurate, reliable and functional.

Technical parameters:

- RS-232C interface;
- Max. capacity: 3200g;
- Readable: 0.01g.



HM L-SC series S.S. Precision Electronic Platform Scale

Usage: Digital scales are electronic weighing devices using modern sensor technology, electronics and computer technology; digital scales are fast, accurate, and more reliable compared to mechanical scales so that more in line with the needs of legal metrology management and industrial process control applications.

Features: digital scales are fast, accurate, and more reliable compared to mechanical scales.

Technical parameters:

- SUS304 stainless steel frame and platform;
- RS-232C interface;
- Max. capacity: 60kg / 150kg;
- Allowable error: 5g / 10g.

> MICROSCOPE & OPTICAL INSTRUMENTS



HM L-MS-BII Inverted Biological Microscope

Usage: HM L-MS-BII Inverted Biological Microscope is especially suitable for microscopy research for tissue, liquid, precipitate of living organism cell. It can continuously observe the reproduction and fission process of cells and bacterium in culture solution, and film any morphology of the process.

Features: HM inverted biological microscope has bright field observation and phase contrast observation, super clear image. It can achieve photomicrography with photography accessories.

Technical parameters:

- High coverage ocular 10×;
- Long working distance plan achromatic objective 10×, 25×, 40×;
- Phase contrast objective PL L10×/0.25 PHP2;
- Double layer moving stage: Dimensions 224mm×208mm, Moving range 112mm×79mm;



HM L-MS-BI Biological Microscope

Usage: The biological microscope is especially suitable for microscopy research for tissue, liquid, precipitate of living organism cell. It can be used to observe microorganism, cell, bacterium, tissue culture, suspensoid and precipitate.

Features: The biological microscope has bright field observation and phase contrast observation, super clear image.

Technical parameters:

- Achromatic objective: 4X, 10X, 40X, 100X(Oil);
- Moving Stage Dimension: 140×155 mm;
- LED adjustable light source.



HM L-MS-SI Stereo Microscope

Usage: It can do demonstration lesson, bio-anatomy, observation and analysis; It also can do component assembly and test of electronic industry and precision machinery, agriculture seed check according to its high resolution ratio and definition of big field range.

Features: Reliable performance, simple to operate, easy to use and nice appearance.

Technical parameters:

- Wide-angle eyepiece: WF10×(Φ20mm);
- Zoom range of objective: 0.7×~4.5×;
- Zoom ratio: 6.5:1;
- Move operating distance: 95mm;
- Light source: Halide torch, adjustable luminance.



HM L-PM-J Polarimeter

Usage: To measure specific ration, optical rotation, concentration, and sugar degrees.

Features: Photoelectric test and microcomputer control; LCD display; Measuring specific rotation, optical rotation and sugar degree; Automatic repetition-measurement for 6 times, and calculation of average value and means square root.

Technical parameters:

- RS232 interface;
- Measurement range: $-45^{\circ}+45^{\circ}$, $-120^{\circ}Z+120^{\circ}Z$;
- Minimum reading: 0.001°
- Accuracy: $(0.01^{\circ}+ \text{Measurement value } 0.05\%)$;
 $(0.03^{\circ}Z+ \text{Measurement value } 0.05\%)$.

> MICROSCOPE & OPTICAL INSTRUMENTS



HM L-RM-JA Refractometer

Usage: To measure refractive index n_D of transparent or translucent liquid and Brix of sugar solution.

Features: Visual aim and LCD display; Automatic correction of the effect of temperature on the Brix. Prism made of hard glass, uneasy to be worn. Printer interface for direct data print-out.

Technical parameters:

- RS232 interface;
- Refractive index n_D : 1.3000–1.7000, ± 0.0002 ;
- Brix (BX–TC, BX): 0–95%, $\pm 0.1\%$;
- Thermostatical control: $\pm 0.2^\circ\text{C}$;
- Temperature Range: 0–50°C.



HM L-CM-J Colorimeter

Usage: An instrument for visual color matching measurement. It is generally used to measure chromaticity for grease, paint, plastic, jam, fabric, food and other material.

Working principle: It adopts internationally recognized special color code–Lovibond to measure chromaticity of various liquid, colloid, solid and powder samples.

Features: Simple structure, and easy operation.

Technical parameters:

- Measurement range:
 - red, yellow: R0.1–R79.9 Lovibond;
 - blue: R0.1–R49.9 Lovibond;
 - neutral: 0.1–3.9 Lovibond.
- Minimum reading: 0.1 Lovibond.



HM L-MP-J Melting Point Tester

Usage: To test melting points of drug, reagent, spice, dye and other organic crystalline material.

Features: Photoelectric test; LCD display; RS–232 interface and real time melting curve.

Technical parameters:

- RS232 interface;
- measurement range: Room temperature–300°C;
- Minimum digital display: 0.1°C;
- Linear heating–up rate: 0.2, 0.5, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0°C/min;
- Accuracy: < 200°C: 0.5°C; 200–300°C: 0.8°C.



HM L-TM-J Turbidimeter

Usage: An instrument for measuring the loss in intensity of a light beam through a solution that contains suspended particulate matter.

Features: Measurement of light scatter and decay of the insoluble particles suspended in water or transparent liquids. Quantitative analysis of particle contents.

Technical parameters:

- Measurement range: 0.00–199NTU;
- Minimum reading: 0.01(0.00–1.99), 0.1(2.0–19.9), 1 (20–199).

➤ MOISTURE TITRATOR & ANALYZER



HM L-MA-K series Karl Fischer Moisture Titrator

Usage: To measure moisture, it can determine crystal water, adsorbed water, dissociative water in liquid, solid, and gas samples with Karl Fischer titration method.

Features: Extra colorful LCD screen, English menu. Dynamic online guidance, simple windows-style operation. Automatic subtract drifting moisture, automatic track of environment drifting moisture, to secure exact final results. Whole sealing system, automatic reagent change, automatic discharge waste water, preventing poisonous gas escaped.

Technical parameters:

- Extra colorful LCD + printer;
- Measuring range 0.001%~100%;
- Titration control accuracy 0.01ml;
- Max. error $\leq 2.0\%$.



HM L-MA-KII Karl Fischer Moisture Titrator

Usage: A kind of economical and durable Karl Fischer moisture titration product, to determine trace amounts of water in a sample.

Working principle: It adopts Karl Fischer measurement to measure moisture.

Features: Use durable LCD and button operation panel, suitable for long time work; automatically regulate rate of titration, convenient and speedy, testing moisture content of samples with high precision.

Technical parameters:

- Measuring range: 0.003%~100%;
- Titration control accuracy 0.001ml;
- Max. Error $\leq 1.0\%$.



HM L-MA-P series Physical Rapid Moisture Analyzer

Usage: To rapidly test loss on drying of solid, particle, powder, colloid, liquid, etc. by the halogen heating.

Features: Clearly display moisture determination result, easy and simple to operate. Pre-store variety determination methods to test rapidly and easily. The halogen heating can dry samples rapidly and evenly under high temperature.

Technical parameters:

- RS-232C interface;
- Max. capacity 110g;
- Readability weight 1mg / 2mg / 5mg.

> ELECTROCHEMISTRY & WATER QUALITY ANALYZER



HM L-TR series Titrator

Usage: HM L-TR series Titrator adopts unit design, achieving potential titration, conductivity titration and constant titration through different unit combination.

Features: Large, touch LCD screen, easy to operate. Computer software control, could make titration analysis on computer's virtual titration operational interface and achieve remote control. With edit titration method, calculate result, store titration curve, database processing and statistic functions.

Technical parameters:

- Parameters: pH/mV(ORP)/°C;
- Measuring range: $\pm 1999.0\text{mV}$ / 1800mV / 1400mV ; $0.00\sim 14.00\text{pH}$; $-5.0\sim 105.0^\circ\text{C}$;
- Accuracy: 0.1mV / 1mV ; 0.01pH ; 0.1°C .



HM L-WQ-H Precision Multi-Parameter Water Quality Meter

Usage: The meters are capable of measuring up to 8 water quality parameters, including pH, ORP, ISE, conductivity, TDS, salinity, resistivity, DO and temperature.

Features: Built-in real-time clock stamps stored data; USB communication interface. Adjustable temperature coefficient, cell constant, TDS coefficient, salinity and barometric pressure compensation.

Technical parameters:

- pH Range: $-2.00\sim 16.00\text{pH}$, $\pm 0.002\text{pH}$;
- mV/ORP Range: $0\sim \pm 1999.9\text{mV}$, $\pm 0.2\text{mV}$;
- Ion Concentration Range: $0\sim 19999\text{ppm}$, $\pm 0.5\%$ F.S (Monovalent), $\pm 1\%$ F.S (Divalent);
- Temperature Range: $0\sim 100^\circ\text{C}$, $32\sim 212^\circ\text{F}$, $\pm 1^\circ\text{C}$;
- Conductivity Range: $0\sim 200\text{mS/cm}$, $\pm 0.5\%$ F.S;
- TDS Range: $0\sim 200\text{ppt}$, $\pm 1\%$ F.S;
- Salinity Range: $0\sim 50\text{ppt}$, $0.00\sim 5.00\%$; $\pm 0.5\text{ppt}$, $\pm 0.05\%$;
- Resistivity Range: $0\sim 100\text{M}\Omega$, $\pm 1\%$ F.S;
- Dissolved Oxygen Range: $0\sim 20.00\text{mg/L}$ (ppm), $\pm 0.3\text{mg/L}$ (ppm);
- % Saturation of Oxygen: $0\sim 200\%$, $\pm 5.00\%$



HM L-PH series Precision pH/mV/ORP/°C/°F Meter HM L-CON series Precision

Conductivity/TDS/Salinity/Resistivity/°C/°F meter

HM L-ION-H Precision Ion/ ORP/pH/°C/°F Meter

HM L-DO-H Precision Dissolved Oxygen Meter

HM L-TDS-H Precision

TDS/Conductivity/Salinity/Resistivity/°C/°F Meter

HM L-PH-O Outdoor Precision pH/ORP/°C/°F Meter

HM L-CON-O Outdoor Precision

Conductivity/TDS/Salinity/°C Meter

HM L-DO-O Outdoor Precision Dissolved Oxygen Meter

HM L-TDS-O Outdoor Precision

TDS/Conductivity/ Salinity/°C Meter

HM L-PH-P Pen Waterproof PH Meter

HM L-CON-P Pen Waterproof Conductivity/°C Meter

HM L-TDS-P Pen Waterproof TDS/°C Meter

> ELECTROCHEMISTRY & WATER QUALITY ANALYZER



HM L-DM-L series Liquid Density Meter HM L-DM-A series Alcohol Density Meter

Usage: To measure liquid concentration, fast, direct, and high sensitivity adopting U-shape oscillation tube principle.

Features: It is constant temperature controlled with automatic sampling, free wall treatment, calibration function and data memory.

Technical parameters:

- Measuring range: 0~1.99999 g/cm³, 0~1.9999 g/cm³;
- Indication error: ± 0.0001 g/cm³, ± 0.0002 g/cm³, ± 0.0005 g/cm³, ± 0.0008 g/cm³;
- Constant temp. precision: $\pm 0.05^{\circ}\text{C}$ / $\pm 0.1^{\circ}\text{C}$.

HM L-DM-A series Alcohol Density Meter measures alcoholic strength by converting measured density of alcoholic solution with special software.

- Measuring range: 0.78923~0.99820 g/cm³, 0.7892~0.9982 g/cm³;
- Indication error: 0.1% q / 0.2% q;
- Constant temp precision: $\pm 0.05^{\circ}\text{C}$ / $\pm 1^{\circ}\text{C}$.



Total Organic Carbon Analyzer (TOC)

Usage: Total Organic Carbon Analyzer (TOC) detects organic through conductivity by oxidizing organic into iron form, forming Carbonate. To measure low-level total organic carbon (TOC) from the difference of conductivity before and after the oxidation of organic.

Features: It can be battery powered. Ultra-portable, flexible, the analyzer can be used online for continuous monitoring or hand-carried to any point in a water system for rapid diagnostic sampling and troubleshooting. As designed, it has a dynamic range of 0.21 to 1,000 ppb and can measure TOC in hot or ozonated water. It meets US, European, Chinese, and India Pharmacopeia specifications.

Technical parameters:

- Linear range: 0.21~1000ppb C;
- Accuracy: $\pm 5\%$ at 500ppb C of sucrose2.3;
- Precision: The greater of $<1\%$ RSD or 0.21 ppb for on-line measurements; $\leq 3.0\%$ RSD at 500 ppb for grab samples.
- Analysis Modes: On-line (average or timed); grab (with optional Vial Sampling Kit)
- Analysis Time Selectable: 15 seconds to 8 hours on-line mode; 10 minutes grab mode

CheckPoint Highlights

- Enables on-line and off-line testing in one instrument
- Display screen and documentation available in English, Chinese, or Japanese
- Self-contained pump for easy system suitability and calibration testing
- Ethernet Modbus transmission to facilitate data system
- IQ/OQ/PQ validation protocols provided
- User-friendly TOC graph that indicates trends
- Stores 28,800 records with TOC display data accessible using USB memory stick
- Five-hour battery available for maximum portability as well as 100~240 volt operation for installed use

> DRUG TESTING & ANALYTICAL INSTRUMENTS



HM L-TT-M Multifunction Tablet Tester

Usage: To test hardness, friability, dissolution and disintegration of tablet.

Features: Reasonable structural design. Stable performance, easy to operate. Accurate and reliable detection data.

Technical parameters:

- Hardness testing: 0~200N, ± 5 N ;
- Friability testing: $\Phi 286$ mm, 2pcs, 25rpm;
- Dissolution testing: 25~250rpm stepless speed regulating, $\pm 1\%$, 6pcs cups;
- Disintegration testing: 55 ± 1 mm, 2pcs cups.



HM L-TT-DS series Tablet Dissolution Tester

Usage: To test dissolution speed and degree of tested medicament from solid preparation.

Features: Rotate basket and plasm haulm are made of imported SUS316L. Automatically and intelligently control temperature, rotary speed and time. The preset and real-time data can be displayed alternately in time. Automation: auto-test, auto-diagnose, auto-alarm.

Technical parameters:

- Speed: 20~200 rpm, ± 2 rpm;
- Temperature: R~45.0°C, $\pm 0.3^\circ\text{C}$;
- Single cup and single haulm / Three cups and three haulms in row / Six cups and six haulms in row / Eight cups and eight haulms in two rows.



HM L-TT-FR series Tablet Friability Tester

Usage: To test the friability and other physical intensity of non-coating table, for example crush intensity, etc.

Features: The cylinders are made of high quality transparency organic glass. The rotary speed and revolution of cylinders can be preset at any time; either preset or real-time value is displayed alternately in time. Automation: auto-test, auto-diagnose, auto-alarm.

Technical parameters:

- 2 cylinders;
- Rotary speed: 20~90 rpm, ± 1 rpm;
- Rotary revolution range: 10~900 circles, ± 1 circle.

➤ DRUG TESTING & ANALYTICAL INSTRUMENTS



HM L-TT-DI series Disintegration Tester

Usage: To detect disintegration of solid dosage in prescriptive conditions.

Features: Adopts imported stainless steel, including lifting nacelles, hanger rod, etc. Automatically and intelligently control the temperature, time and nacelle trip frequency. The preset and real-time data can be displayed alternately in time. Automation: auto-test, auto-diagnose, auto-alarm.

Technical parameters:

- Temperature: preset range 20–45°C;
- Controlling accuracy $\pm 0.5^\circ\text{C}$;
- Single test station / Double test stations / Three test stations.



HM L-TH Thaw Tester

Usage: To test thaw, softening, and solution of the suppository, vaginal tablets and other solid preparations under rated conditions.

Features: The three net frames can be synchronously turned artificially. The magnetism-pumped circular water current can heat the system evenly. Temperature and time controlled automatically. The preset and real time data can be displayed alternately in time. Automation: auto-test, auto-diagnose, auto-alarm.

Technical parameters:

- Synchronously turned artificially;
- Temperature: $37 \pm 0.5^\circ\text{C}$.



HM L-TT-H series Hardness Tester

Usage: To detect breaking hardness of tablet.

Features: High-precision pressure sensor, digital display. Auto-display, auto-hold and auto-memory. Auto-reset, and automatic loop test; Automation: auto-test, auto-diagnose, auto-alarm.

Technical parameters:

- Test range: 0–20kgf.
- Test accuracy: $\pm 0.05\text{kgf}$.
- Tablet diameter range: $\leq 40\text{mm}$.



HM L-TT-T series Thickness tester

Usage: To measure thickness of peak and wall of capsule, diameter and thickness of various tablets, pills and so on.

Features: High-accuracy test with the most precise, high-quality centigrade meter.

Technical parameters:

- Test range:
 - Tablet: 0–30mm diameter and thickness;
 - Capsule: 00, 0, 1, 2, 3, 4, 5 model
- Test accuracy: $\pm 0.01\text{mm}$
- Desk type / Hand held type.

➤ DRUG TESTING & ANALYTICAL INSTRUMENTS



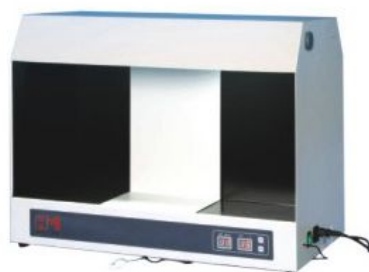
HM L-TDT Tap Density Tester

Usage: To determine physical product characteristics as particle size, size distribution, and shape.

Features: Easy for use in USP method I and method II, and the experimental methods are indicated by luminous diode. One or two cylinder simultaneous tapping and rotary to ensure tapping evenly. SCM control, button input, easy operation. LED display, simple and visual.

Technical parameters:

- Tap speed: 300 ± 1 rpm; 250 ± 1 rpm.
- Tapping height: 14 ± 2 mm; 3 ± 0.3 mm.



HM L-CA series Clarity Tester

Usage: To detect clarity of injection and bottled medicine liquid.

Features: The three-primary-color fluorescent lamp is controlled by high-precision lighting sensor, electronic inductor and shading. Flash eliminated, adjustable illumination, high detection resolution, and small visual fatigue. Time and alarm automatically.

Technical parameters:

- Three-primary-color fluorescent lamp;
- Illumination range: 1000–4000Lx, adjustable.



HM L-GM Germs Collector

Usage: HM L-GM Germs Collector is a supporting instrument of closed sterile canister, can be widely used for sterility test of sterile preparation. It also can take microbial limit tests with membrane filter together for several industries, such as drug, food, and drink.

Features: Compact design, saving more room for your unidirectional air flow bench; Stepless speed adjustment, capable of speed memorizing; Mirror polished stainless steel surface, more durable; Using water-proof foot switch connector;

Technical parameters:

- Stepless speed adjustment;
- Rotation speed: 15–300rpm.



HM L-CC Colony Counter

Usage: A kind of digital display automatic bacterial examination device.

Features: It has molding counting chamber, can eliminate germ contamination effectively, easy for uperization. Non flicker round electric light source, three levels of optical amplification 1X, 5X, 10X. Induction pressure count system has bacteria mark color, automatic accumulation and verifies function.

Technical parameters:

- LED shows counter capacity from 0 to 999;
- Induction pressure count system;
- Three levels of optical amplification 1X, 5X, 10X;
- Size of petri dish: 50–90–150mm.

➤ DRUG TESTING & ANALYTICAL INSTRUMENTS



M L-ML Microbial Limit Tester

Usage: It is used for microbial limit test for purified water, water for injection and liquid preparation, total bacterial count and pathogenic bacterium test.

Features: Fast filtration, Automatic pressure unloads, easy for getting funnel. Integrated design with filter membrane and funnel. Single aseptic packaging, convenient for usage.

Technical parameters:

- Speed of evacuation: 25L/min;
- Vacuum degree: 30Kpa;
- Membrane diameter: Φ60mm.



HM L-ATD Antibiotic Assay

Usage: HM L-ATD Antibiotic Assay adopts CCD and high precision scanning principle to get image. It is used to determine the potency of the antibiotics using an assay technique. The potency of the antibiotics can be examined by their inhibitory effect on the respective microorganisms.

Features: Adopt CCD scanner to get image, measurement and analysis of 6 tested samples(dish) can be achieved simultaneously. And connect with PC via USB communication interface. use Windows operating system, and adopt CCD and high precision scanning principle to get image.

Technical parameters:

- Measurement range of plate: 1~100mm;
- Single measurement of six dish, measuring area 210×297mm;
- Resolution: $\leq 0.0105\text{mm}$;
- Accuracy of titer measurement: $\leq 0.5\%$.



HM L-EL Enzyme-Labeled Instrument (ELIASA)

Usage: It can do inspection items including hematology, immunology, tumor immunology, communicable disease immunology, TORCH immunology of infection diseases, genetic testing, etc.

Features: Wide range of voltage 110v~240v. Wide wave range: 400~750nm. Multi-channel optical fiber system, test 96 holes within 5 seconds. Data storage: 200 analysis programmes, 1000 plates 96 holes result.

Technical parameters:

- Wide range of voltage 110v~240v.;
- Wide wave range: 400~750nm (Standard component: 405, 450, 492, 630nm, 4sets of filters.)
- Indication range: 0.000~3.5(A);
- Resolution: 0.001 Abs;
- Accuracy: $\Delta A \leq \pm 0.01$ ($0 \leq A < 1.0$) ; $\leq 2.5\%$ ($1.0 \text{ Abs} \leq A \leq 2.5 \text{ Abs}$)



HM L-AM Azotometer

Usage: It is widely used for nitrogen / protein analysis in grain, fertilizer, feed, foodstuff, water, soil, biochemistry preparation and other industries.

Features: Real-time monitor the temperature of drips. Dry-run protection when the electrical heating pipe is lack of water. Protection of unclosed safety door, LCD display.

Technical parameters:

- Distilling range: 0.08~200mgN;
- Recovery rate: $\geq 99.5\%$;
- Reproducibility: $< 0.5\%$.

> DRUG TESTING & ANALYTICAL INSTRUMENTS



HM L-GT-B Gelatine Bloom Tester

Usage: To detect jelly strength of gelatine under rated conditions.

Features: Using high-precision pressure sensor, auto-correcting nonlinear errors, high accuracy. A new type of high-reliability and great-power compressor applied in refrigerator, with high speed and low noise in refrigeration. Automation: auto-test, auto-diagnose, auto-alarm.

Technical parameters:

- Bloom range: 5~1000g;
- Accuracy: $\pm 0.5\%$, $\pm 1g$;
- Temperature: 5~39.9°C, $\pm 0.1^\circ C$.



HM L-RG series Roughmeter

Usage: To measure surface roughness of various machining parts.

Features: High-precision inductive transducer. It can measure and display 13 parameters of roughness. Mechatronics design, small volume, light weight and easy operation. With high-quality Li-ion chargeable batteries, it can work continuously for more than 20 hours. Popular menu operation mode. Auto power-off with memory function.

Technical parameters:

- Measuring parameter: Ra, Rz, Ry, Rq, Rp, Rm, Rt, R3z, Rmax, Sk, S, Sm, tp;
- Measuring range: Ra: 0.025 μ – 12.5 μ ;
- Indication error: $\leq \pm 10\%$;
- Indication variability: $< 6\%$



HM L-GT-T Gelatine Transparency Tester

Usage: To detect transparency of gelatine.

Features: Using standard glass test tube and precise photo-electricity transducer. Automatically calculating transparency value.

Technical parameters:

- Transparency range: 20~500mm;
- Accuracy: $\pm 5mm$.



HM L-TA-S series Synchronous Thermal Analyzer (STA)

Usage: To observe the quality with temperature or the change of time, the purpose is to study material thermal stability and components.

Features: Measurement and research material following characteristics: Thermal stability, decomposing process, adsorption and desorption, oxidation and reduction, ingredients quantitative analysis, additives and filler influence, moisture and volatiles, reaction kinetics.

Technical parameters:

- Temperature range: room temperature ~ 1150°C;
- Wide range of weighing: 1mg~2g;
- DSC measuring range: 0~ $\pm 500mW$;
- DSC Resolution: 1 μW ;
- Resolution: 0.1 μg



HM L-AF-D Aflatoxin Detector

Usage: It adopts TLC method, after extract, concentrate and separates the thin layer, aflatoxin B1 produce purple fluorescent light under the UV light of wavelength 365mm, according to minimum detectable amount it shows fluorescent on the thin layer to determine the content.

Features: Testing variety: grain, food, feed, fruit, meat, fish and shrimp, etc.

Technical parameters:

- Testing method: TLC;
- Minimum detectable amount: 0.0004 mcg.



HM L-TA-D series Differential Thermal Analyzer (DTA)

Usage: To measure the temperature difference and temperature relationship between the sample and the reference material in the process control temperature.

Features: Differential thermal curve can describe the relationship of the temperature difference ΔT changes with the temperature or time between the sample and the reference material.

Technical parameters:

- Temperature range: room temperature ~ 1150°C;
- Differential thermal range: 0~ $\pm 2000 \mu V$;
- Precision of DTA: $\pm 0.1 \mu V$.

➤ DRUG TESTING & ANALYTICAL INSTRUMENTS



HM L-BM Butyrometer

Usage: To test fat in foodstuff, oil, feed and other industries.

Features: Reasonable design, stable performance, high precision, easy operation, and time saving, test results accord with national standard, and indexes, as well as performance, meet the requirements of international like products.

Technical parameters:

- Test range: grain, feed, oil plants and various fat products that with 0.5%–60% of oil content range;
- Testing sample: 6 purchase;
- Range of temp. control: $R+5^{\circ}\text{C}$ – 300°C .



HM L-CFA Crude Fiber Analyzer

Usage: To determine crude fiber content of testing sample.

Features: It adopts acid and base with accurate concentration to digest samples under specified condition, and use ethanol to remove soluble substance. It is not an exact chemical entity, but a rough composition tested under the well-known mandatory condition, including cellulose of basis composition, a bit of hemicellulose and lignin.

Technical parameters:

- Test range: 0 ~ 100%;
- Testing accuracy: relative difference $\leq 4\%$, parallel error $\leq 0.4\%$;
- Temp. range: room temp – 400°C .



HM L-OM Osmometer

Usage: To measure osmolality in pharmacy, pharmaceutical analysis and clinical medication, and osmolality of body fluid in medical diagnosis and emergency treatment.

Features: Adopts freezing–point depression principle and high–precision sensor, high accuracy of measurement, good performance of reproducibility. Use double refrigeration system, short precooling time, speedy detection, easy to detect continuously.

Technical parameters:

- Testing Range: 0–3000mOsmol/kg H_2O ;
- Sample Volume: 50ul(50ul–70ul);
- Repeatability: $\text{RSD} \leq \pm 1\%$
- Accuracy: $\pm 2\text{mOsmol/kg}$ ($\leq 400\text{mOsmol/kg}$); $\pm 1\%$ ($>400\text{mOsmol/kg}$).



HM L-VS series Viscometer

Usage: To measure absolute viscosity of Newtonian liquid and apparent viscosity of non-Newtonian liquid.

Features: Blue back–light high–light LCD display. High sensitivity measurement, reliable test result. Easy operation and elegant appearance.

Technical parameters:

- Measuring range: $1 \rightarrow 2 \times 10^6\text{mpa}\cdot\text{s}$;
- No. 1,2,3,4 rotor;
- Rotor speed: 0.3, 0.6, 0.5, 3, 6, 12, 30, 60 rpm;
- Precision: $\pm 2\%$ (Newtonian liquid)



HM L-VS-B series Brookfield Viscometer

Usage: To detect bloom viscosity of gelatine.

Features: The Brookfield viscometer works in Bloom mode and the Bloom gram is displayed in digital. Using capillary and precise photo–electricity transducer. Automatically calculating time and viscosity. Auto–timing, auto–alarming, auto–testing continually.

Technical parameters:

- Viscosity: 0–9.99mPa·s, $\pm 0.05\text{mPa}\cdot\text{s}$;
- Temperature: 60.0°C , $\pm 0.1^{\circ}\text{C}$;
- Time: 0–999.9s, $\pm 0.1\text{S}$.

> SAMPLE PRE-PROCESSING EQUIPMENT



HM L-GD series Laboratory Grinder

Usage: To prepare samples with uniform size, fast, reliable, typically according with the requirements of the same standard.

Features: Sample preparation can directly achieved without sieve, less process, high production efficiency. Sealing design with grinding room, no dust pollution, according to the requirements of environment protection. Stable running, low noise, accord with the requirements of safety production.

Technical parameters:

- Max. charge material: 100g / 200g / 300g;
- Charging particle size: <13 mm;
- Discharging particle size: 80–200 mesh (0.2mm).



HM L-GD-CU Ultrasonic Cell Grinder

Usage: HM L-GD-CU Ultrasonic Cell Grinder is used for cell grinder.

Features: With PWM control switching power supply, the grinder has continuously adjustable power. It can store 50 experimental parameters sets. Novel design, complete-function, high efficiency and low cost laboratory homogenizer

Technical parameters:

- Crushing capacity: 0.5–600ml;
- Duty ratio: 0.1–99.9%;
- Tip: standard component Φ2, 3, 6, 10 or 15.



HM L-MD-H High-speed Dispersion Mill

Usage: To prepare samples with uniform size, fast, reliable, typically according with the requirements of the same standard.

Features: LCD display. By means of the high-speed rotary movement of the internal cutting blades, the material-mixing, emulsifying and crushing are done.

Technical parameters:

- Speed range: 2800–28000 rpm;
- Timing range: 1–9.9min, adjustable;
- Capacity: 3ml–1000ml
- Cutter Size: Φ10, 14, 18mm



HM L-AS200 Analysis Sifter

Usage: HM L-AS200 Analysis Sifter is integrated with power classification and liquid filter, to analyze the mesh structure of particles and powder material accurately. It is also suitable for testing and analyzing solid content of liquid.

Features: Small size, light weight, easy operation, wide application, low noise, high efficient and precision. Adopt latest vertical motor as vibration source. The motor have eccentric hammers on both upper and lower end to achieve level, upright and slope movement.

Technical parameters:

- Sieve size: 0.038 ~ 3 mm;
- Sieve frame: Φ200 mm * 7 layers;
- Capacity: 200g per batch.



HM L-MD-S series Multifunction Dispersion Mill

Usage: To dispersive mix and grind a few products, applied in such industries as painting, printing ink, colour paste, dye, pesticide, cosmetic, etc.

Features: Latest structure design, unique product quality. Superior materials, low noise, stable running, ensure high quality of the whole instrument. Closed working, reduces volatilization and splashing pollution, easy for operation, convenient for cleaning. Combine with grinding and dispersing. CPU digital display dynamic rotate speed, achieving operations of timing constant speed.

Technical parameters:

- CPU digital display dynamic rotate speed: 0–3000 rpm, stepless Adjustable;
- Motor driven lifting;
- Capacity: 3L, 5L, 10L, 15L, 20L/batch.



HM L-GD-CP High-Pressure Cell Grinder

Usage: Acting on high-pressure principle, the instrument is used for extruding cells, especially suitable for smashing thick-wall cells, germs and denser solution samples.

Features: Noiseless, less heating and no metal ion contamination.

Technical parameters:

- Hydraulic pressure, with max. 256Mpa;
- Stainless steel sample tank;
- 50ml/time, continuous increase samples;
- Stoke: 170mm; 6.8mm/s.

> SAMPLE PRE-PROCESSING EQUIPMENT



HM L-GD-T High-Throughput Tissue Grinder

Usage: A free choice in dry grinding, wet grinding, mixing and homogenizing treatment. It can crush cells with special cell disruption beads, which can't be crushed by ultrasonic high-pressure crushing.

Features: Feed small steel balls (or zirconia balls) in grinding tank or centrifuge tube for filling samples. Use grinding balls to grind, making samples grinded more uniformity and full than conventional grinding mode.

Technical parameters:

- Grinding Frequency: 3–30times/sec, adjustable;
- Timing: 1–99minutes;
- Sample capacity: with 1ml–2ml adapter 2 × 36 holes / 5ml adapter 2 × 24 holes/ 0.2ml–0.5ml adapter 2 × 96 holes.



HM L-SH-H series High-speed Shaker

Usage: HM L-SH series High-speed Shaker is applicable to the quick oscillation mixing of 96 holes standard enzyme-labelled plate, polyporous plate and microporous plate of molecular biology, virology, microbiology, pathology, immunology for science research unit, medical collages, disease control centre, medicine and hygiene labs etc.

Features: Low noise, uniform mixing, convenience and rapidity; Breaking through convention with first-class originality and updated structure.

Technical parameters:

- Frequency: 0–1450 rpm;
- Scope: 96-hole standard plates * 2pc / 4pcs / 6pcs.
- (Option) with cover to control temperature: room temp ~70°C; < ± 1.0°C.



HM L-CT-H16 High-speed Laboratory Centrifuge

Usage: It is used for the separation of biological products, blood product and liquid medicine in hospital, laboratory, colleges and universities, laboratory in scientific and research organization and each grade blood station.

Features: Good absorption of vibration and automatic balance function. Rotate speed adopts the speed regulation controlled by PWM, high precision with rotate speed control.

Technical parameters:

- Max. speed: 16000rpm;
- Max. capacity: 6 × 50ml.



HM L-SH-T Thermo-Shaker

Usage: It is mainly used to ELISA plates (96 pores /384 pores), tissue culture plates (24 orifice plates and 48 orifice plates), and other solutions, and at the appropriate temperature for mixing or tissue culture and incubation.

Features: Light weight, low noise, no pollution, with temperature, oscillation speed and time displayed in LCD, simple operation.

Technical parameters:

- Temperature: R+5°C~70°C; <0.5°C
- Capacity: 96-hole standard plates * 2pcs / *4pcs.



HM L-CT-M series Handheld Mini Centrifuge

Usage: HM L-CT-M series Handheld Mini Centrifuge is suitable for the centrifuge tubes of 2ml, 1.5ml, 0.5ml, 0.2ml, sedimentation and reagents planked down on the tube wall or tube closure, and it may also apply to the use of eight caldaria tubes of 0.2ml.

Features: Suitable for the centrifuge tubes of 2ml, 1.5ml, 0.5ml, 0.2ml.

Technical parameters:

- Rotate speed: 12000/rpm, 6000/rpm;
- Centrifugal: 2ml × 8/1.5ml × 8/0.5ml × 8/0.2ml × 8/0.2ml × 16.



HM L-SH-I series Shaking Incubator

Usage: HM L-SH-I series Shaking Incubator is widely applied in all kinds of researches required intermediate requirements of temperature and oscillation, such as cell culturing, fermentation, hybridizing, biochemistry, enzyme and cell tissue, and so on.

Features: Concentrate with incubator and shaker, small volume, large amount of bottle loading. Large LCD screen and low noise.

Technical parameters:

- Shaking speed: 20~300r/min;
- Temperature range: 4~65°C; 0.1°C.
- Platform size: 750 × 460mm / 920 × 500mm.

> SAMPLE PRE-PROCESSING EQUIPMENT



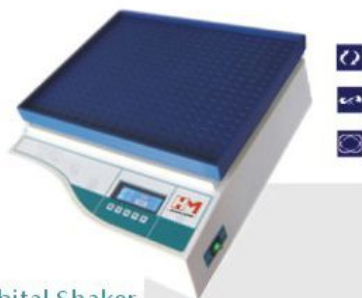
HM L-SR-A Magnetic Stirrer

Usage: It is used for stirring the non-viscous liquids for biology, medicine, chemical industry, environmental protection and other industries.

Features: High automation. Easy operation. Velocity can be preset and controlled in highly accurate and sensitive steps.

Technical parameters:

- Velocity can be preset and controlled: 200~1000 rpm;
- Max. capacity: 1000ml.



HM L-OS series Orbital Shaker

Usage: HM L-OS series orbital shaker is widely used in the fixation of electrophoresis gel, the vibration and shaking in dyeing and decolorizing coomassie blue, and further processing of cellulose film after electrophoresis transference.

Features: With brushless starting dc motors, nylon 1010 axes and copper-making eccentric sleeves, making them work smoothly and wear well; The natural rubber plate shaped by molding can effectively prevent machines from being corroded by carelessly overflowed acid and alkali solutions.

Technical parameters:

- Decoloration model / Transference model / Universal model;
- Frequency: 20~240rpm / 0~80rpm;
- Rotation range: turning radius 15mm / up-down 20mm / three-dimensional motion;
- Plate size: 320×265mm / 280×260mm / 320×265mm.



HM L-SR-O series Motor Stirrer

Usage: It is used for stirring the liquids or mixer.

Features: High automation. Easy operation. Two muddlers (one small, one big) are suitable for different vessels and liquors. Velocity can be preset and controlled in highly accurate and sensitive steps.

Technical parameters:

- Velocity can be preset and controlled: 60~2000 rpm;
- Max. capacity: 15000ml; 8000ml; 3000ml; 1000ml.



HM L-OS-F series Flask Orbital Shaker

Usage: It can be applied for motion and static culturing of microbial cell and various strains, especially suitable for pilot-scale experiment and volume-production in pharmaceuticals.

Features: Running quietly, provide better environment. Large LCD display, multi sets of data display on one screen, menu operation interface, easy, understandable, clear at a glance. The whole shaking table adopts 304 stainless steel, easy for disassembling and cleaning.

Technical parameters:

- Rotate speed: 20~300rpm, ± 1 r/min;
- Shimmy range: 35mm/50mm;
- Tray size: 800×600mm;
- Single layer / Double layers.

➤ SAMPLE PRE-PROCESSING EQUIPMENT



HM Vortex-5 Vortex Mixer

Usage: Vortex mixer is used commonly in laboratories to mix small vials of liquid.

Features: Powerful vortex mixer of point touching, continuity and speed regulation, Mixed mode of touching and vertex, Multifunction, Mixed mode of automatic and touching.

Technical parameters:

- Suitable shaking plate: both bowl and flat type;
- Rotating speed: 2800rpm;
- Induction distance: 30cm.



HM L-MX-R Rolling Mixer

Usage: To handle suspension organism needing air exchange or blood sample.

Features: Mixing angle is adjustable with horizontal position for small-amplitude mixing and vertical position for fully mixing. Mainframe has antispray platform with 3 optional accessories of tube racks applicable to sample tubes in different specs.

Technical parameters:

- Digital rotating speed display: 10~80rpm, adjustable;
- Timing: 0~120 min or continuity.



HM L-MX-O Oscillation Mixer

Usage: It can quickly mix and oscillate with multiple containers.

Features: The functions of manual or automatic mixing can be achieved by exchanging different fittings, and the liquid in all centrifuge tubes and test tubes of 50ml, 15ml and 1.5ml may also be quickly mixed

Technical parameters:

- Speed regulation: 300~2800rpm;
- Timing: 0~120min/continuity;
- Gyration amplitude: around 3mm.

> SAMPLE PRE-PROCESSING EQUIPMENT



HM L-HM-G series Glass Homogenizer

Usage: A new type of whole sealing intelligent instrument for liquid preparation. The puddler circumrotates in high speed through the joint axes which install in the pedestal to churn up the liquid sample completely and fleetly. The special cup can be sterilized completely.

Features: Churn up uniformity, fast and easy to use. The special cup can be sterilized completely which is light weight, good feel, and easy operation. One cup for one batch of samples, prevent cross contamination. Knob type mechanical timing and electric timing for your choose.

Technical parameters:

- Engineering plastics cup, resistance with 135°C;
- Small cup 10ml~120ml; big cup 20ml~250ml;
- Rotating speed: 8000~10000r/min;



HM L-HM-GS Sterile Glass Homogenizer

Usage: To prepare testing sample. It can be used to crush up and churn up the solid, liquid, oil sample for medicine, pharmacy, cosmetic, food and microorganism.

Features: The whole machine is treated by stainless steel polish, easy to clean. Sealing parts are made of silica gel. Suit to sterilize in high temperature, without waste and pollution. With auto self-protection setting.

Technical parameters:

- Rotating speed: 1000~10000r/min;
- Timing: 0s~300s.



HM L-HM-B Bag Mixer Sterile Homogenizer

Usage: It is widely used in the homogenization treatment for animal tissue and biological samples, also used for the following testing areas: food, pharmaceutical, cosmetics, clinics molecule, toxin and bacteria, particularly suitable for preparation of micro-organism testing samples.

Features: The device is made of stainless steel and can effectively separate the surface of solid sample from a sample with germs inside.

Technical parameters:

- Temperature: room temperature~50°C;
- Heating sterilization: single-disinfection cycle 5min, disinfection wavelength 253.7nm;
- Timing: 0.1~99 minutes
- Rattling speed: 3~12 times/second;
- Effective Volume: 3~400ML.



HM L-HM-H High-pressure Homogenizer

Usage: To treat fermentation samples, mainly used for sample treatment in biological engineering laboratories and pharmaceutical factories, and widely applied for crushing Escherichia coli and saccharomycetes. Emulsification and homogenization can also be achieved.

Features: High pressure, small volume, easy operation, high crushing rate, and high output of samples.

Technical parameters:

- Maximum working pressure: 1200bar/120Mpa /17400psi;
- Maximum capacity: 12L/h;
- Minimum capacity: 30ml;
- Cooling: built-in cooler.

> SAMPLE PRE-PROCESSING EQUIPMENT



HM L-PBC series Pressure Blowing Concentrator

Usage: It is used for sample preparation in gas phase, liquid phase and mass spectrometry.

Features: It adopts international recognized technology to concentrate samples by blowing nitrogen into the surface of heating sample. The pretreatment technology of solid phase extraction can separate and purify samples fast.

Technical parameters:

- Dry type aluminum block heating / Water bath heating.
- Temperature control: room temperature – 150°C / 100°C, $\pm 0.1^\circ\text{C}$;
- Gas flow: 0–15L/min, 0–10L/min, 0–5L/min;
- Holes quantity: 36 / 24 / 12.



HM L-DG-F series Infrared Digestion Furnace

Usage: It is used for digestion of plant, seed, feed, foodstuff, soil, ore in the departments of agriculture, forestry, environmental protection, geology, chemical industry, foodstuff, colleges and universities, and scientific research.

Features: Good chemical stability, high temperature resistance, various shapes, no deformation and radiance regression with long term usage, good heat stability, selectable heating temperature, long service life, proper structure, small thermal inertia, and easy operation.

Technical parameters:

- Temp. Range: room temperature to 680°C, $\pm 1^\circ\text{C}$;
- Furnace hole Qty.: 20 holes / 8 holes.



HM L-DG-M Microwave Digestion System

Usage: It is used for sample preliminary treatment of analytic chemistry such as digestion, extraction, proteolysis, etc.

Features: Furnace chamber is sprayed with PFA material produced by American DuPont LTD., good resistance to industry strong acid, high-temperature endurable. Use high pressure sealed water pipe to detect system pressure, feedback control, and over-pressure alarm

Technical parameters:

- Microwave: 2450 \pm 13MHz;
- Leakage: $\leq 0.3\text{mW/cm}^2$;
- Temperature: 0–300°C, $\pm 0.5^\circ\text{C}$;
- Pressure: 0–8MPa, $\pm 0.01\text{MPa}$;
- H type high pressure containers: 10 sets / 6 sets / 4 sets.



HM L-DG-G series Graphite Digestion System

Usage: It is used for sample preliminary treatment of environmental protection, chemical, food, medicine and biochemical industry, it is also apply to pretreatment, evaporation and cooling treatment for microwave digestion.

Features: Integration of design, quick digestion, high efficiency, energy-saving, convenient.

Technical parameters:

- Temperature: max. 240°C, $\pm 1.0^\circ\text{C}$;
- Sample treating capacity: 50 ml \times 54pcs / 24pcs / 15pcs;
- Digestion aperture size: $\Phi 23 \times 40\text{mm}$.

> SAMPLE PRE-PROCESSING EQUIPMENT



HM L-LY series Laboratory Lyophilizer (Freeze-Dryer)

Usage: It can pre-freeze directly in the cold trap for a small amount of samples, applicable for laboratory usage and small amount production, and satisfying conventional lyophilized requirements of most laboratories.

Features: Small size, compact structure, easy operation. LCD display and record drying curves.

Technical parameters:

- Table type / Vertical type; --Models: ordinary / top-pressing / multi-manifold / T-shape rack;
- Lyophilizing area: 0.08m² / 0.12m² / 0.18m² / 0.27m²;
- Vacuum degree: <10 Pa;
- Material tray: Φ180mm × 3layers / Φ200mm × 4layers / Φ240mm × 4layers / Φ240mm × 6layers.



HM L-LY-H series Heating Lyophilizer (Freeze-Dryer)

Usage: HM L-LY-H series Heating Lyophilizer is small size vertical lyophilizer, suitable for lyophilizing experiments of laboratory sample and small amount production.

Features: With heating function, LCD display, can store 16 programs, RS232 interface.

Technical parameters:

- Model: ordinary / top pressing / Multi-manifold;
- Lyophilizing area: 0.09 m² / 0.18 m²;
- Vacuum degree: <10 Pa;
- Material tray: Φ200mm × 3layers / Φ240mm × 4layers.

> Evaporator & Glassware



HM L-RE series Rotary Evaporator

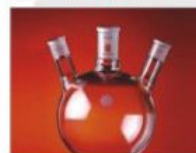
Usage: It is used to remove solvents from reaction mixtures and applied in bio-chemical, pharmaceutical and fine-chemical trades for processes like concentration, refining, separation, crystallization, etc..

Features: Equipped with accurate control of bath temperature fluctuation. Digital temperature, rotary speed and vacuum display. Various options are available.

Technical parameters:

- Evaporating flask: 5L / 3L / 0.5+1L;
- Receiving flask: 3L / 2L / 1L;
- Lifting bath, 180°C / 90°C;
- Intelligent temp. Control: +/-0.2°C;
- Rotation speed: 2-90rpm / 4-200rpm.

FOR DISTILLATION: TUBES:



3-neck round bottom flask



Test tube



Melting point tube



Drying tube

FOR CONDENSATION:



Condenser-west tube



Condenser-Allihn type



Coil condenser



Vacuum take-off adapter



Vacuum adaptor

➤ Evaporator & Glassware

OTHER GLASS APPARATUS:



Flint glass dropping bottle



Serum bottle



Cell culture flask



Petri dish



Alcohol burner



Tissue grinder

MEASURING VESSELS:



Measuring cup



Graduated cylinder



Pycnometer



PTFE stopcock burette

FOR ANALYZING OIL AND FATS:



BSU/M Miniature Suspended Level Viscometer Tube



Volatile oil determination apparatus



Soxhlet extraction apparatus with coil

FUNNELS:



Globe-shaped separatory funnel



Pear-shaped separatory funnel



Safety funnel



Stemmed funnel



Spherical filtering tube

CONTAINER FOR HEATING:



Beaker in tall form



Iodimetric flask



Crystallizing dish

VARIOUS CONTAINERS:



Flint wide-mouth bottle



Flint narrow-mouth bottle



Brown wide-mouth bottle



Brown narrow-mouth bottle



Reagent bottle with blue screw cap



Reagent bottle with blue screw cap (Brown)



Vacuum-pressure desiccator



Desiccator



Specimen bottle with conical form



Glass mortar



HM L-WD-G Washing Disinfectant

Usage: It can wash the experimental ware and instruments inside and outside with detergent and disinfectant, so as to achieve disinfecting effect.

Features: Automatic cleaning procedure: 7 procedures such as strong force, standard, economic, rinse, fast, ultra fast, prewashing. Prior working mode: memory function, easy operation.

Technical parameters:

- HM L-WD-G-A model lower washing bracket for utilities;
- HM L-WD-G-B model lower washing basket for ampoule;
- HM L-WD-G-C model lower washing basket for erlenmeyer flasks / triangle measuring cup.

➤ THERMOSTATIC, DRYING & INCUBATOR



HM L-OV-E series Electro-thermostatic (Blast) Oven

Usage: It is used for drying, baking, dewaxing, sterilizing, etc. by heating.

Features: Both the internal and external of box body are made of high quality steel sheet by welding, Microcomputer based intelligent digital display temperature controller, Adoption of low-noise fan and suitable air channel that form the hot air circulating system, the heated dry air flows through the objects directly to dry and sterilize.

Technical parameters:

- Table type / Table type with blast function / Vertical type with blast function;
- Temperature: 10~300°C / 10~250°C, $\pm 1^\circ\text{C}$;
- Volume: 16L/30L/43L/70L/140L/225L/430L/630L/960L.

HM L-OV-V series Vacuum Drying Oven

Usage: It is used for powder drying, baking, and sterilizing and disinfecting for various glass containers by heating and vacuum help.

Features: Cuboid working chamber enables its effective volume reaches the largest. Microcomputer based temperature controller, with accurate and reliable temperature control. Toughened and bullet-proof double glazed glass door, it is clear at a glance when viewing the objects inside the working chamber. Tightness degree of the box door is adjustable, integrated formed silicon rubber seal ring for gate guarantees high vacuum degree inside the chamber.

Technical parameters:

- Temperature: 10~200°C, $\pm 1^\circ\text{C}$;
- Vacuum degree: 133Pa;
- Volume: 24L / 53L / 91L / 215L.



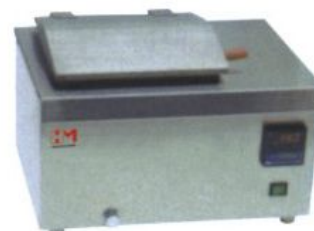
HM L-BT-W series Thermostatic Water Bath (Boiler)

Usage: HM L-BT-W series Thermostatic Water Bath (Boiler) is used for precision constant-temperature and auxiliary heating and applied to medical health, medical colleges, industrial and mining enterprises and scientific research units.

Features: Adopting stainless steel internal bladder and top cover, nice surface and good quality. Microcomputer based intelligent temperature controller

Technical parameters:

- Temperature: 37~65°C/RT~100°C, $\pm 0.5^\circ\text{C}$;
- Volume: 5L/10L / 15L / 20L / 26L / 30L.



HM L-BT-O series Thermostatic Oil Bath

Usage: HM L-BT-O series Thermostatic Oil Bath is used for precision constant-temperature and auxiliary heating by oil bath.

Features: Adopting stainless steel internal bladder and top cover, nice surface and good quality. Microcomputer based intelligent temperature controller

Technical parameters:

- Temperature: RT+5~200°C/RT+5~300°C;
- Temp. control: $\pm 0.5^\circ\text{C}$ / $\pm 0.2^\circ\text{C}$;
- Volume: 12L.



HM L-MF series Muffle Furnace

Usage: HM L-MF series Muffle Furnace (box-type electric resistance furnace) is used for metallographic analysis, metal heat treatment, and firing glass.

Features: The heating element is resistance wire. Large loading capacity, heat treatment environment in the relatively poor environment for periodic use, furnace has good wear resistance.

Technical parameters:

- Max. operation temperature: 1050°C / 1200°C;
- Volume: 2L / 7L / 16L / 30L / 80L / 160L.

➤ THERMOSTATIC, DRYING & INCUBATOR



HM L-BI series Biochemical Incubator

Usage: HML-BI series Biochemical Incubator is the high-precision thermostatic equipment with cooling and heating control, also the thermostatic culture devices of bacillus and mold culture test. It is used for scientific research and production in various fields.

Features: It adopts the incubator body made of stainless steel sheet, surface powder coated, microcomputer-based intelligent LCD-display temperature controller, and the well-known compressor, with the advantages like freon-free refrigeration. The reasonable and advanced temperature circulation system.

Technical parameters:

- Temperature: 0~60°C, $\pm 0.5^\circ\text{C}$;
- Humidity: 50~95%RH, $\pm 5\% \sim \pm 8\% \text{RH}$;
- Volume: 100L / 160L / 250L / 300L / 400L / 500L.

HM L-MI series Mold Incubator

Usage: It is used for scientific research and production in various fields like bioengineering, medical research, hygiene and disease control, environmental protection, drug inspection, farming, aquatic product, college, water body analysis, plant cultivation, storage, etc.

Features: Similar with biochemical incubator. There is an ultraviolet lamp in the incubator.

Technical parameters:

- Temperature: 0~60°C, $\pm 0.5^\circ\text{C}$;
- Humidity: 50~95%RH, $\pm 5\% \sim \pm 8\% \text{RH}$;
- Volume: 100L / 160L / 250L / 300L / 400L / 500L.



HM L-CI series CO₂ Incubator

Usage: HML-CI series CO₂ Incubator is an incubator with CO₂ inside used for research of microbiology, medicine, agricultural science and pharmacology, such as culture of various cell and tissue, research of AIDS, tumor and heart disease, virus proliferation, bacterium culture, bacterial Culture, etc..

Features: Microcomputer based intelligent controller, CO₂ inlet port is equipped with high performance microbiological filter, Ultraviolet germicidal lamp, Large LCD intelligent temperature controller.

Technical parameters:

- Air jacket / Water jacket;
- Temperature: 0~50°C, $\pm 0.3^\circ\text{C}$;
- CO₂: 0~20%, $\pm 0.1\%$;
- Volume: 80L / 160L / 240L.



HM L-STC series Medicine Stability Testing Chamber

Usage: HML-STC series Medicine Stability Testing Chamber supplies a long-time stable environment with temperature, humidity and illumination for stability test of pharmaceutical company to confirm expiry date of drugs.

Features: Special microcomputer thermo-hygrometers, history curve and data of temperature and humidity in detail is the basis of test results. Satisfy 40°C, 20%RH low humidity test for infusion solutions and other special drugs. There are three types: the drug stability test chamber, the drug high-light stability test chamber, the comprehensive drug stability test chamber.

Technical parameters:

- Temperature: 15~65°C, $\pm 2^\circ\text{C}$;
- Humidity: 15~95%RH, $\pm 5\%$;
- Illumination range: 10 ~ 10000Lux,
- UV-light illumination range: 0 ~ 1.00 mw/cm²;
- Volume: 125L / 200L / 360L / 480L / 1000L / 1980L (with single / double / triple / quadruple chambers)

> PURIFIED WATER, CLEANING, STERILIZER & STORAGE



HM L-PW series Laboratory Purified Water Unit

Usage: HM L-PW series Laboratory Purified Water System is a small unit to produce purified water from the city water mainly applied for environmental analysis experiments, physics, electrochemistry and toxicologic study, all kinds of precise instruments analysis, precise analysis standard, molecular biology and bioscience, cell tissue culture, etc..

Features: Unique American RO treatment technology and accessories can satisfy all kinds of inflow water source with different hardness. The functions of automatic, manual and timing washing help to extend service life of RO membrane efficiently. Large English LCD display.

Technical parameters:

- Feed water: TDS<200PPm / TDS<720PPm;
- Conductivity: 0.5~0.1 μ S/cm, \leq 0.06 μ S/cm, 0.055 μ S/cm;
- Resistance: 2~10 M Ω .cm/15~18.25M Ω .cm/18.25M Ω .cm;
- TOC: \leq 10PPb / \leq 5PPb / \leq 1~2PPb;
- Capacity: 5/10/15/20/30/40/50/60/80/100/125/150/250L/H.



HM L-DA series Distill Water Apparatus

Usage: HM L-DA series Distill Apparatus adopts the method of heating city water or purified water and condensation by the circulating water to get the distilling water. It is applicable for medical sanitation institutes and scientific research institutes and laboratories, etc.

Features: The distill apparatus is unit equipment for preparing distilled water, adopting electric heating tube as heating source, and using city water as raw water and cooling water. airproofed well can avoid the steams overflow effectively.

Technical parameters:

- Electric heating tube heating;
- City water or purified water as raw water and cooling water;
- Distilled water output: 5L/H, 10L/H, 20L/H.



HM L-UC series Ultrasonic Cleaning Machine

Usage: HM L-UC Ultrasonic Cleaning Machine is used for laboratory application of universities and colleges, dispersion, dissolution, extraction, and chemical reaction accelerating of medicine and nanometer materials.

Features: Ultrasonic transducer adopts high-quality piezoelectric ceramic chips, durable in use. The inner chamber adopts high-quality SUS304 stainless steel. The shell adopts high-quality powder coating steel, good appearance and durable.

Technical parameters:

- Frequency: 35/40/50/60KHz;
- Temperature: 0~99°C;
- Capacity: 3L, 6L, 10L, 22L, 30L.



HM L-ST-S series Steam Sterilizer

Usage: HM L-ST-S series Steam Sterilizer is the equipment which utilizes the pressure saturated steam for sterilizing goods quickly and reliably.

Features: Microcomputer intelligent automatic control, with automatic drying function. Handwheel type quick-open safety door interlock device. Shell, vessel and basket are all made of stainless steel SUS304, resistant to acid, alkali and corrosion. Pressure safety interlock device, over temperature protection device.

Technical parameters:

- Working pressure: 0~0.22MPa;
- Working temperature: 0~135°C;
- Volume: 50L, 75L, 100L.

> PURIFIED WATER, CLEANING, STERILIZER & STORAGE



HM L-ST-HA series Hot Air Sterilizer (Dry Heat Sterilizer)

Usage: HM L-ST-HA series Hot Air Sterilizer (Dry Heat Sterilizer) is used for sterilizing through microorganism oxidation, protein denaturalization, dielectric concentration, etc.,. It mainly takes the oxidation to kill all microorganisms in a certain heating time by means of damaging the cell protoplasm.

Features: Accuracy, Rapidity, Safety, Convenience, RS-485 interface is available

Technical parameters:

- Temperature: RT+10~300°C; $\pm 0.5^{\circ}\text{C}$.
- Volume: 35L, 70L, 140L, 220L.



HM L-RF-L series Low Temperature Refrigerator

Usage: HM L-RF-L series Low Temperature Refrigerator is used for low temperature storage of biological product, chemical reagent, blood plasma, vaccine, culture, biological sample and so on.

Features: Adopt thermal insulating door and secondary air-tight door, less loss of refrigeration capacity, and energy saving. Adopt air cooling condenser, good heat dissipation, fast refrigerating. The ultra low temperature refrigerator system is installed with safety protection device, ensuring that the refrigerator system runs safely and reliably.

Technical parameters:

- Horizontal type / Vertical type;
- Temperature: -10°C ~ -30°C / -15°C ~ -40°C / -25°C ~ -65°C ;
- Volume: 60L / 128L / 250L / 270L / 300L / 350L / 500L.



HM L-SF-L series Laboratory Storage Freezer

Usage: HM L-SF-L series Laboratory Storage Freezer is used for health & medicine, medical research and other related department to store drugs and biological products.

Features: Temperature control, Safety system, Refrigerating system, Humanity design, multi-purpose paperless recorder.

Technical parameters:

- Temperature: 2°C ~ 8°C ;
- Volume: 128L / 228L / 308L / 618L / 1000L.

HM L-SF-C Series Chromatography Experiments Freezer

Usage: HM L-SF-C series Chromatography Experiments Storage Freezer is used for the experiments that require low temperature environment, or freezing storage.

Features: Tall cupboard space, easy to operate chromatography. The whole perspective double glass doors keep from exposure, double door locking can be opened separately. Own lighting, sterilization lamps, up, down and inner power socket. Intelligent and smart temperature control instruments, temperature setting and measuring are displayed in digital.

Technical parameters:

- Temperature: 1°C ~ 10°C ;
- Volume: 800L / 1230L.

LABORATORY FURNITURE



HM L-LF series Laboratory Furniture

HM L-LF-TSW series Steel-wood Laboratory Table has simple structure with C or H frame, flexible, variable, and free combination.

HM L-LF-TAS series All-steel Laboratory Table we supplied is practical, safe and simple. With high bearing capacity, easy installation and disassembled, human engineering structure, and reasonable design, it can fully satisfy user's requirements.



HM L-LF-FH series Fume Hood

As an important security device, HM L-LF-FH series Fume Hood supplies an efficient mode of part ventilation. Generally, it should be achieved in the fume hoods for all experiments that contain poison and harmful gas, while the gas is inflammable, explosive, and volatile. It also should be proceeding in the hood while detecting material with the performance unknown, and doing qualitative and quantitative experiment. It supplies proper security protection for personnel and surrounding in the laboratory.

HM L-LF-FC series Functional Laboratory Cabinet



All-steel medicine cabinet



Multistep medicine cabinet



Reagent cabinet



Ware cabinet



Sample cabinet



Display cabinet

HM L-LF-FT series Functional Laboratory Tables



Laboratory table for electrician



Balance table



Table for fetching material



Stainless steel bench



Clean bench



Dissecting table

LABORATORY FURNITURE



HM L-IS-Q series QC Laboratory Isolator

Usage: HM L-IS-Q series QC Laboratory Isolator is used for Biological safety protection in biosafety and other laboratories. The cabinets can prevent harmful particulate matters and aerosol from diffusing.

Features: Set the size of worktable according to the customers' requirement. Set pressure(positive and negative) according to the testing sample, which is adjustable. Operation chamber and pass box can be operated singly and in combination, optional configuration: sterile waste pass box.

Technical parameters: Available to be made to your order.



HM L-BC series Biosafety Cabinet

Usage: HML-BC series Biosafety Cabinet is used for biological safety protection in biosafety and other laboratories. The cabinets can prevent harmful particulate matters and aerosol from diffusing.

Features: HEPA or ULPA filter with no leaking in air supply and exhaust system. Negative pressure and double layers chamber prevents pollution and leakage. English HMI, operate with touchable button. Interlocked light and sterilizing system. Non-obstructive air return mode in the front suction channel.

Technical parameters:

- Vertical laminar flow negative pressure;
- 100% air filtered to be exhausted / 30% air filtered to be exhausted;
- HEPA: ISO class 5 (class 100) /ULPA: ISO class 4 (class10);
- Working dimension: 970×600×620mm
1270×600×620mm
1570×600×620mm.



HM L-CB series Biological Clean Bench

Usage: HM L-CB series Biological Clean Bench is local air clean equipment with biological safety protection to operators for laboratories and different fields.

Features: Sliding door system is free to place. Vertical laminar flow, airflow circulating inside and air exhausting on the top. Air curtain protection in the front control area. Capacious working area are double-sides control. Mutual exclusive light and sterilizing safety interlock system.

Technical parameters:

- Single-side working / Double-sides working;
- ISO class 5, class100 (Fed 209E);
- Working dimension: 680×650×570mm
1000×700×620mm
1300×700×620mm
1600×700×620mm.

HM L-BCWT Laminar Air Clean Bench

HM typical reference



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