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LAB

化学工艺解决方案供应商
CHEMICAL PROCESS SOLUTION SUPPLIER

南京宁凯仪器有限公司
Nanjing Ningkai Instrument Co., Ltd

ABOUT US

关于我们

南京宁凯仪器有限公司是专业生产玻璃(金属)反应釜及配套加热制冷控温系统、超声波细胞破碎仪、短程分子蒸馏、旋转蒸发器、管式反应器等科研及中试设备的实体企业。

本公司拥有数位在反应釜、高低温温控系统、超声波设备设计开发方面具有丰富经验的高素质研发团队。本着以市场和用户需求为导向，以科技为中心，运用国际先进技术不断创新，紧随市场步伐，满足市场需求。

公司产品广泛应用于生命科学、化学、材料学、环保等科研中，目前已被北京大学、清华大学、南京大学、天津大学及中国科学院所属各研究所等国内众多高等院校、研究所、药厂所采用。我们的产品远销俄罗斯、美国、丹麦、波兰、以色列、西班牙、墨西哥、韩国、日本等58个国家。



Nanjing Ningkai Instrument Co., Ltd. is a professional manufacturer of glass (metal) reactors and supporting equipment heating and cooling temperature control system, ultrasonic Cell disruption instrument, short path molecular distillation, rotary evaporator, tubular reactors ,etc.

Our company has a high-quality research and development team with rich experience in the design and development of reactor, high and low temperature control systems, and ultrasonic equipment. Guided by market and user needs, centered on technology, and utilizing international advanced technology to continuously innovate, we keep up with the pace of the market and meet market demands.

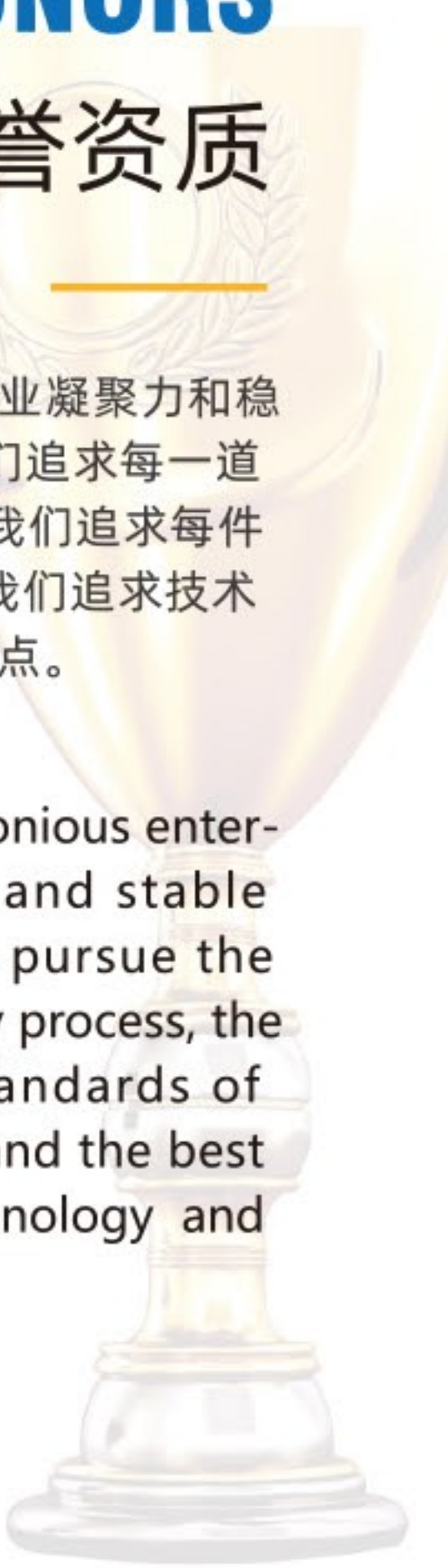
Our products are widely used in life science, chemistry, materials science, environmental protection and other scientific research. At present, they have been adopted by many domestic colleges, universities, research institutes and pharmaceutical factories, such as Peking University, Tsinghua University, Nanjing University, Tianjin University and research institutes affiliated to the Chinese Academy of Sciences. Our products are exported to 58 countries including Russia, the United States, Denmark, Poland, Israel, Spain, Mexico, South Korea, and Japan.

INSTRUMENT HONORS

荣誉资质

我们追求和谐的企业凝聚力和稳定的人才队伍。我们追求每一道工序的倾心投入，我们追求每件产品的专业标准，我们追求技术与生产的最佳契合点。

We pursue harmonious enterprise cohesion and stable talent team. We pursue the devotion of every process, the professional standards of every product, and the best fit between technology and production.



APPLICATION AREA

应用领域



化学领域 Chemistry

温度在工艺工程、反应釜温度控制方面起到了重要的作用, 化学反应、合成、药物基本组分的生产, 聚合和结晶都是在有温度控制的反应釜中进行的。

Temperature plays an important role in process engineering and reactor temperature control. Chemical reactions, synthesis, production of basic pharmaceutical components, polymerization, and crystallization are all carried out in reactors with precise temperature control.



生物科技 Biotechnology

生物反应器的恒温控制对于成功的生产起到至关重要的作用。作为样品制备的组成部分, 有很多的生产步骤需要可靠的温度控制。

The constant temperature control of bioreactors plays a crucial role in successful production. As a component of sample preparation, there are many production steps that require reliable temperature control.



汽车领域 Automotive

汽车行业对于温度控制的要求一般在测试台架和材料测试环节, 所有的汽车的零部件都会在极高的温度波动条件使用, 测试零部件特殊的台架十分重要。

The automotive industry generally requires temperature control in the testing bench and material testing process. All car components are used under extremely high temperature fluctuations. A special bench for testing components is crucial.



制药领域 Pharmaceutical

在制药领域, 温度控制过程遍布于研究和生产放大环节。为了得到高质量的反应产品, 对反应釜进行稳定可靠的温度控制十分必要。

In the pharmaceutical field, temperature control processes are ubiquitous in research and production scale-up processes. In order to obtain high-quality products, stable and reliable temperature control of reactor is very necessary.



半导体工业领域 Semiconductor

生产金属有机化合物化学气相沉积(MOCVD)生产LED晶片的镀膜过程中的应用。其它半导体行业的典型应用如功能应力测试和负载测试、环境条件模拟和在线集成电路性能测试等。

The application of metal organic compound chemical vapor deposition (MOCVD) in the coating process of producing LED chips. Typical applications in other semiconductor industries include functional stress testing and load testing, environmental condition simulation, and online integrated circuit performance testing.



航空领域 Aviation

温度模拟和材料的温度测试是航空航天领域非常重要的组成部分。循环温度变化应力测试确保了所使用的零部件没有任何的故障, 即使在太空中极端的外部条件波动下。

Temperature simulation and material temperature testing are very important components in the aerospace field. The cyclic temperature change stress test ensures that the components used are free from any faults, even under extreme external conditions in space.

CONTENTS

目录 | CONTENTS

Glass Reactor 玻璃反应釜	01
Rotary Evaporator 旋转蒸发器	09
Short path molecular distillation 短程分子蒸馏	15
Thin film evaporator 薄膜蒸发器	23
Heating Circulator 加热循环器	27
Heating refrigeration circulator 加热制冷循环器	31
Low temperature circulator 低温制冷循环器	41
Ultrasonic cell crusher 超声波细胞破碎仪	47
Industrial Ultrasonic Treatment Equipment 工业型超声波处理设备	49
High (low) temperature water bath 高(低)温恒温槽	51
Hybridization oven/ UV cross-linker 分子杂交仪/紫外交联仪	56
Flap type (sterile) Homogenizer 拍打式(无菌)均质器	58
Grinding machine 研磨仪	60

GLASS REACTOR

玻璃反应釜

玻璃反应釜为双层玻璃设计, 其内层放入反应溶媒, 可做搅拌反应, 夹层可通上不同的冷热源(冷冻液, 热水或热油)做循环加热或冷却反应。在设定恒温条件下, 密封的玻璃反应釜内可根据使用要求在常压或负压条件下进行搅拌反应, 并能进行反应溶液的回流与蒸馏, 是现代精细化工、生物制药和新材料合成的理想中试、生产设备。



The glass reactor can be designed as a single, double or triple wall reactor kettle body according to requirements. The reaction menstroom can be put into the inner layer to do stiring, interlayer can be connected with cold and heat source (frozen liquid or hot oil) to do circulating heating or cooling reaction. Under the setting of constant temperature, in sealed glass reactor, stirring reaction can be carried out at atmospheric pressure or negative pressure conditions according to the operating, and also can carry out reflux and distillation of the reaction solution. This machine is an ideal production equipment for the modern fine chemical, pharmaceutical and biological synthesis of new materials.

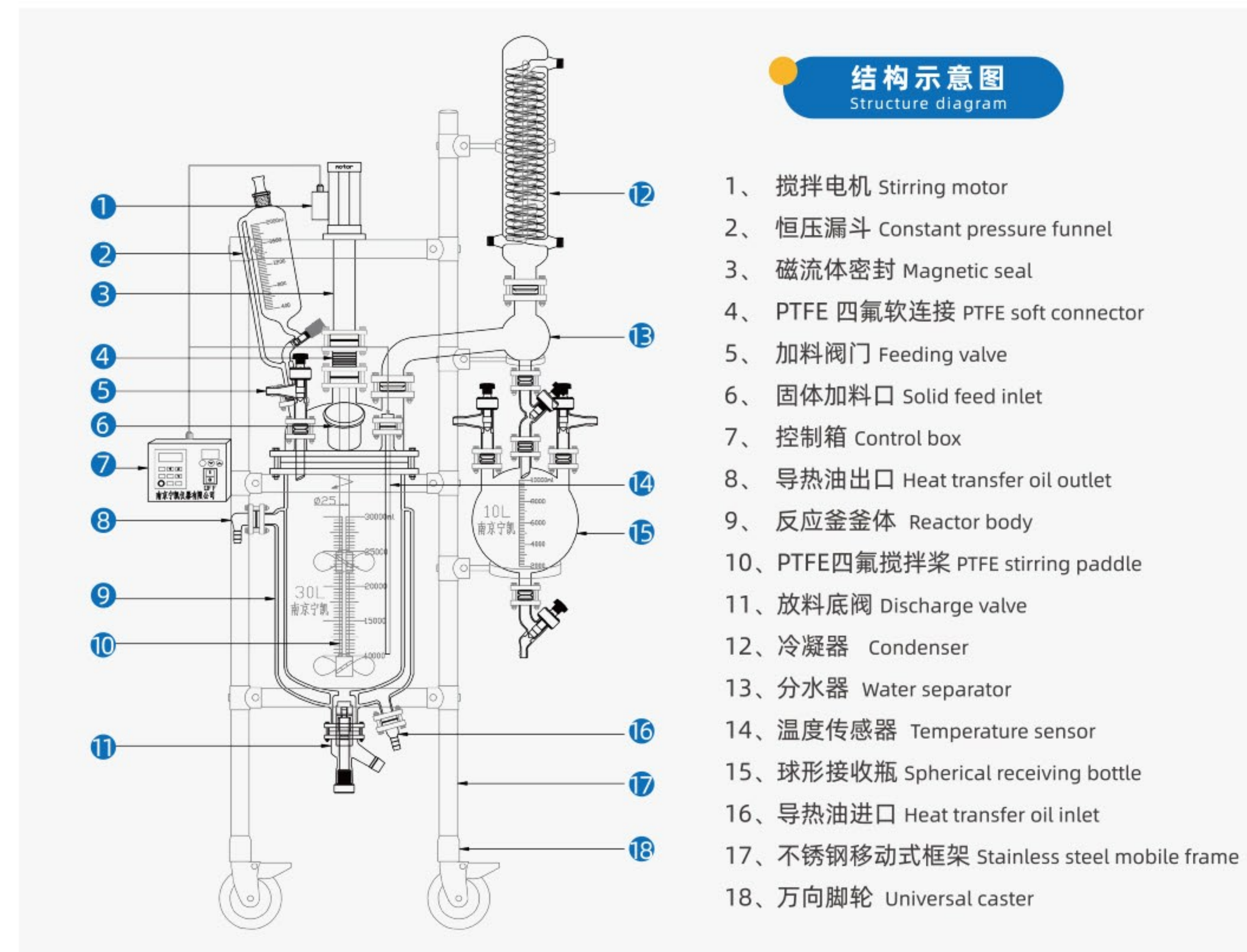


- ▶ 整体不锈钢立柱移动式框架结构, 多口反应釜盖, 具回流, 加液、测温等全套玻璃。
- ▶ 选用G3.3高硼硅玻璃, 有良好的化学、物理性能。
- ▶ 合金钢机械密封, 聚四氟乙烯接口, 保持在工作状态下的高精度密封。
- ▶ Pt100传感器探头, 测温精度高, 误差小, 有效提高工作效率。
- ▶ 交流齿轮减速电机, 强扭力, 无噪声。
- ▶ 聚四氟乙烯搅拌桨, 适用于低至高黏度液体的搅拌与混合。
- ▶ 聚四氟乙烯放料阀, 可活动接口, 出料彻底快捷。
- ▶ 根据客户要求特殊设计釜体结构 (如: 测PH值、砂芯过滤装置等)。
- ▶ 根据客户要求, 反应釜均可做成防爆装置 (防爆指的是防爆电机+防爆控制箱+防爆温度现场显示仪)。

- ▶ The whole supporting frame is made of 304 stainless steel tubes which are removable with universal casters. Meanwhile, all ports on the reactor lid could be customized according to client's requirements.
- ▶ Use G3.3 high borosilicate glass, with good chemical and physical properties.
- ▶ Alloy steel mechanical seal, PTFE connector, to maintain a high precision seal in the working condition.
- ▶ With PT100 sensor probe, high precision temperature measurement, small errors, high efficiency.
- ▶ AC gear reduction motor, strong torsion, no noise.
- ▶ PTFE stirring paddle, be suitable for low or high viscosity liquid stirring and mixing.
- ▶ PTEE discharge valve. movable interface, discharging completely and quickly.
- ▶ Our company can design special kettle body structure according to customer requirements (such as: PH meter, sand core filtration devices etc.)
- ▶ All the electrical parts can be made of explosion-proof device according to the customer request. (The explosion-proof device refers to the explosion-proof motor + Explosion-proof control box + Explosion-proof temperature field display instrument)



产品型号 Product model	XC-1L	XC-2L	XC-3L	XC-5L	XC-10L	XC-20L	XC-30L	XC-50L	XC-80L	XC-100L	XC-150L	XC-200L
釜容积Volume(L)	1	2	3	5	10	20	30	50	80	100	150	200
夹套容积 Jacket volume(L)	0.3	0.6	0.9	1.5	3	6	10	16	24	30	45	60
釜口数 Neck No.on lid	4	4	4	5	6	6	6	6	6	6	6	6
釜盖直径 Lid diameter(mm)	150	150	150	180	265	265	265	265	340	340	340	340
内筒外径 External diameter of the inner vessel (mm)	113	135	150	180	230	290	330	365	410	460	550	600
外筒外径 External diameter of the outervessel (mm)	150	180	200	230	290	330	365	410	460	500	600	650
釜体高度 Vessel height(mm)	250	280	300	400	450	550	730	850	950	950	980	1200
电机功率 Motor power(W)	90	90	90	120	120	140	140	180	250	250	400	750
真空度 Vacuum degree (Mpa)	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096
转速 Rotation speed (rpm)	50-800	50-800	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600	50-600
转矩 Torque(Ncm)	30	30	30	162	162	210	210	300	350	350	400	400
整机尺寸 Dimensions(mm)	320x350 x800	320x350 x800	320x350 x900	450x450 x1100	500x500 x1200	500x500 x1450	500x500 x1600	600x600 x1800	700x700 x2400	700x700 x2600	800x800 x2800	1200x900 x3200
电源 Power	AC110V/220V/380V 50Hz/60Hz											





定制50L防爆精馏反应釜
50L explosion-proof distillation column



定制30L+100L玻璃组合釜
30L+100L customized combination reactor



1Lx4 多步反应釜
1Lx4 multi-step reaction reactor



不锈钢/玻璃真空过滤器
SS/Glass vacuum filter

- ▶ 作为专业的实验室设备生产商,我们可以按照客户的需求定制产品(除常规设备外)。
As a professional lab equipment manufacturer, we can also produce customized equipment according to client's demands besides the conventional equipment.
- ▶ 定你所需,制你想要。
Customize what you need,produce what you want.



定制50L升降过滤反应釜
Explosion proof 50L nutsche filter



定制10L升降过滤翻转釜
Explosion proof 10L lifting nutsche filter reactor



防爆100L双层玻璃反应釜
Explosion proof 100L jacketed reactor



定制5L单层玻璃过滤釜
5L single wall nutsche filter



定制不锈钢压滤釜
Jacketed ss nutsche filter



定制1L组合反应釜
1L Continuous Reactor

定制组合反应釜

CUSTOMIZED MULTIFUNCTIONAL REACTOR



定制3L组合反应釜
3L Continuous Reaction Reactor



定制50L组合反应釜
50L customized multifunctional reactor



定制50L、100L反应釜组合
50L 100L Customized Ex-proof jacketed reactor



定制200L组合反应釜
200L Customized multifunctional reactor

定制超声反应釜

ULTRASONIC JACKETED REACTOR



定制50L超声反应釜
50L Ultrasonic jacketed reactor



定制50L超声反应釜
50L Ultrasonic jacketed reactor



定制10L超声反应釜
10L Ultrasonic jacketed reactor



定制超声反应釜
Ultrasonic jacketed reactor

ROTARY EVAPORATOR

旋转蒸发器 (实验室级+中试级) Laboratory+ pilot scale

旋转蒸发器主要用于减压条件下连续蒸馏大量易挥发性溶剂。尤其对萃取液的浓缩和色谱分离时的接收液的蒸馏，可以分离和纯化反应产物。基本原理是减压蒸馏，也就是在减压的情况下，当溶剂蒸馏时，蒸馏烧瓶在连续转动。利用装好物料的玻璃瓶，进行旋转并均匀恒温加热，系统在连接负压的条件下，使物料沸点降低，液体形成薄膜而蒸发，然后通过玻璃盘管冷凝器及收集瓶对溶媒进行回收，特别适用于对热敏感物料的浓缩、结晶、分离、溶媒回收等。



The laboratory instrument rotary evaporator is mainly used for continuous distillation of a large number of volatile solvents under reduced pressure. In particular, the concentration of the extract and the distillation of the receiving liquid in the chromatographic separation can separate and purify the reaction product. The basic principle of a rotary evaporator is vacuum distillation. That is, in the case of reduced pressure, the distillation flask is continuously rotated as the solvent is distilled. The glass bottle filled with materials is rotated and uniformly heated at a constant temperature. Under the condition of connecting negative pressure, the boiling point of the material is lowered, the liquid forms a film and evaporates, and then the solvent is recovered through the glass coil condenser and the collecting bottle. It is especially suitable for the concentration, crystallization, separation and solvent recovery of heat sensitive materials.



实验室级旋转蒸发器

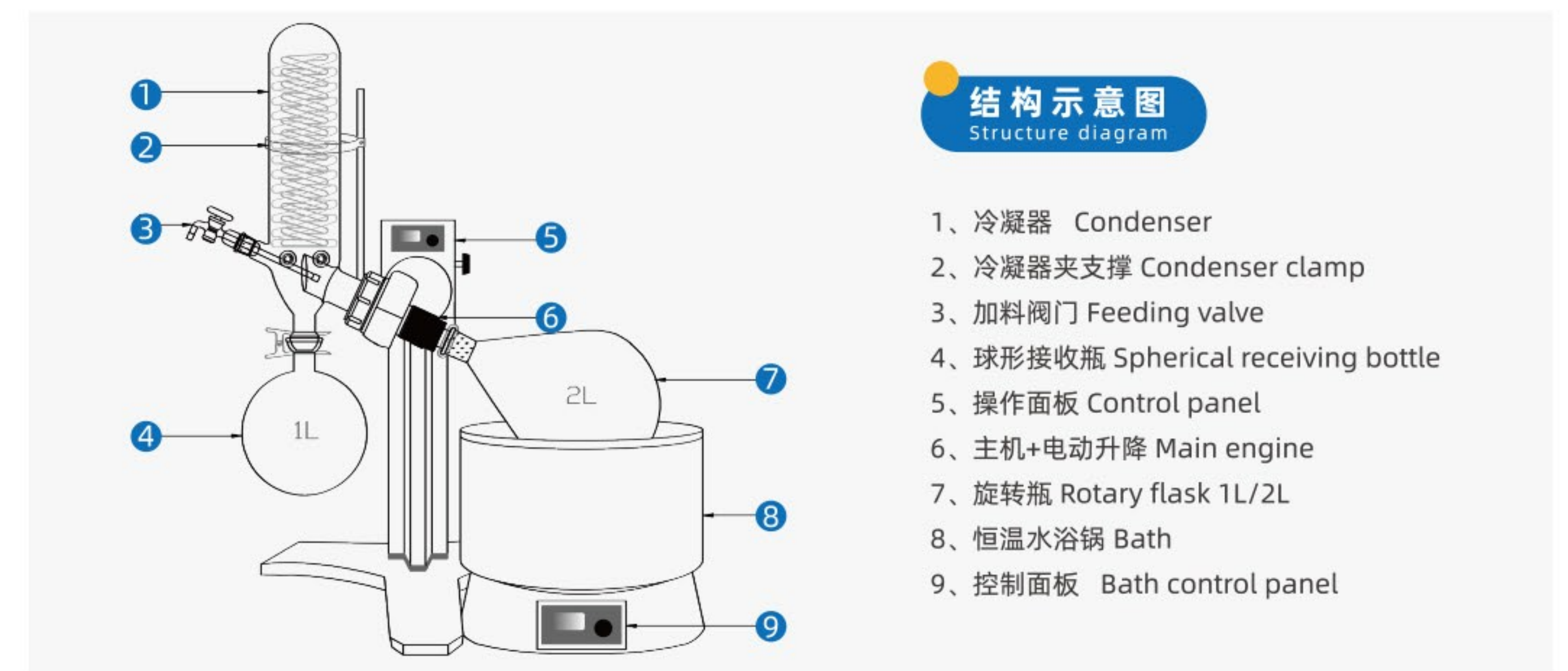
LABORATORY SCALE ROTARY EVAPORATOR

- ▶ 手动/自动升降，结构简单、稳定，单手可轻松操作。
- ▶ 独特的密封系统设计，PTFE+FKM材料高弹性密封圈，耐高温、耐腐蚀、经久耐用。
- ▶ 斜式双层蛇形盘管，冷却面积0.15m²，蒸发能力可达Max.18ml/min。
- ▶ 水浴/油浴双重加热模式，温度LCD数显，可进行定时操作。
- ▶ 水浴锅高安全等级设计，具有防干烧断电功能。
- ▶ 高效双重冷凝管，防止蒸发冷凝液倒流设计。
- ▶ PID控制，转速LCD数显操作简单快捷。
- ▶ 可选精确的进口真空表。
- ▶ 本产品采用宽电压，可满足110V/220V的电源使用。



PTFE+FKM材料密封圈

- ▶ Manual/automatic lifting, simple and stable structure, easy to operate with one hand.
- ▶ Unique sealing system design, high elastic sealing ring of PTFE+FKM material, high temperature resistance, corrosion resistance and durability.
- ▶ Inclined double-layered serpentine coil with a cooling area of 0.15m² and evaporation capacity up to Max.18ml/min.
- ▶ Water bath/oil bath double heating mode, temperature LCD digital display, can be used for timing operation.
- ▶ Water bath pot with high safety level design, with anti-dry and power-off function.
- ▶ High efficiency double condensing tube to prevent evaporation condensate backflow design.
- ▶ PID control, speed LCD digital display operation is simple and fast.
- ▶ Optional accurate imported vacuum gauge.
- ▶ This product uses a wide voltage to meet the 110V/220V power supply.

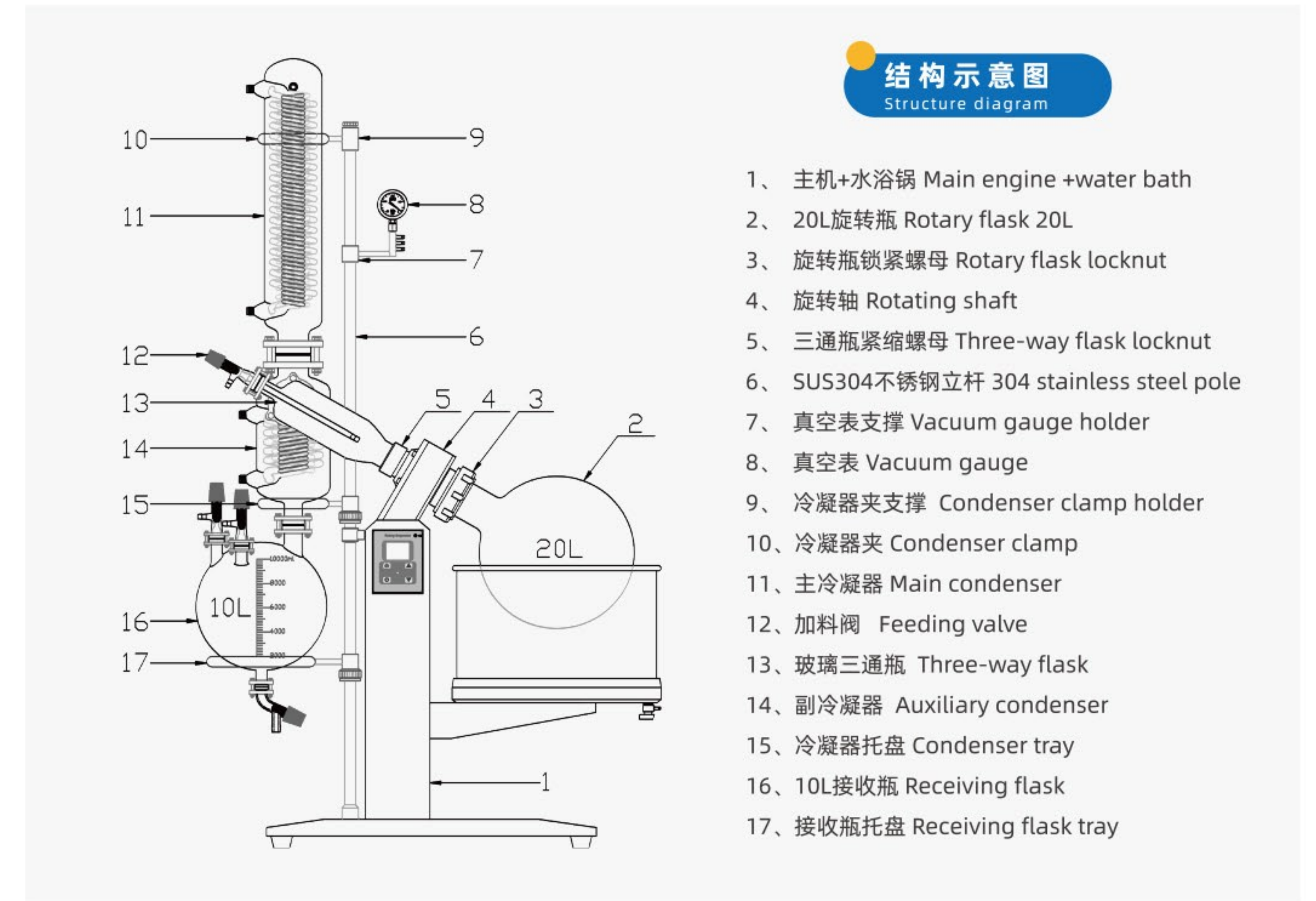




产品型号 Product model		XZ -1L	XZ -2L
性能 Performance	旋转速度 Rotation speed	20 -180rpm	
	水浴温度范围 Water bath temp. range	RT~100°C	
	蒸发能力 Evaporative capacity	20ml/min	
	极限真空度 Ultimate vacuum	8mbar	
功能 Function	转速设定 Rotation speed setting	旋钮设定液晶显示 Knob setting LCD display	
	升降方式 Lifting mode	手动Manual control	自动Automatic
	电机功能 Motor function	无 NO	直流无刷电机 DC brushless
结构组成 Structure	主电机 Main power	直流无刷 DC brushless	
	冷凝器 Condenser	蛇形冷凝管冷凝面积0.15m ² 、1L/2L 旋转瓶、1L 收集瓶 TS29/38 瓶夹、球磨口 S35/20 S-shaped condenser, condensation area 0.15m ² , 1L or 2L Rotary flask, 1L collection bottle, TS29/38 bottle holder, ball grinding port S35/20	
	真空密封圈 Vacuum sealing ring	PTFE+ 特氟龙涂层 PTFE+ Teflon coating	
加热浴 Heating bath	水浴锅尺寸(内) Water bath dimension	D230mm*H130mm	
	水浴锅材质 Water bath material	不锈钢耐腐蚀涂层 Stainless steel corrosion resistant coating	
	加热功率 Heating power	1000W	
使用温度范围 Operating temperature range	5~35°C		
外形尺寸 Dimension	H230mm*D150mm		
电源输入 Power supply	110V~220V 50/60Hz		

中试级旋转蒸发器

PILOT SCALE ROTARY EVAPORATOR





产品型号 Product model	XZ-5L	XZ-10L	XZ-20L	XZ-50L
旋转瓶 Rotary flask	5L法兰口 Φ50 Flange mouth Φ50	10L法兰口 Φ125 Flange mouth Φ125	20L法兰口 Φ125 Flange mouth Φ125	50L法兰口 Φ125 Flange mouth Φ125
收集瓶 Receiving flask	3L	5L	10L	20L
转速 Rotation speed	20 -140rpm	20-130rpm	20-130rpm	20 -110rpm
旋转电机功率 Rotary motor power	250W	250W	250W	250W
冷凝管 Condenser pipe	立式双重蛇形管 Vertical dual coilpipe	立式, 主冷+副冷, 高效三回流冷凝管 Vertical type, main condenser + auxiliary condenser, efficient tri-backflow condenser pipe		
浴锅材质 Bath material	不锈钢 Stainless steel			
使用温度范围 Temperature range	RT-100°C			
最大真空度 Maximum vacuum degree	-0.096Mpa			
蒸发能力 Evaporative capacity	Water ≥2L/h Alcohol ≥4L/h	Water ≥4L/h Alcohol ≥6.5L/h	Water ≥5L/h Alcohol ≥11L/h	Water ≥10L/h Alcohol ≥19L/h
升降功能 Lifting function	电动升降 Electric lifting			
升降行程 Lifting stroke	0-150mm	0-160mm	0-190mm	0-180mm
电源 Power supply	220V/50Hz	220V/50Hz	380V/50Hz	380V/50Hz
整机功率 Overall power	1.5Kw	3Kw	4.5Kw	9Kw
外形尺寸 Dimension	830x400x1100mm	990x550x1650mm	1160x600x1780mm	1350x770x2150mm

防爆型旋转蒸发器

EXPLOSION-PROOF



防爆型旋转蒸发器
Explosion-proof rotary evaporator



注: 可配套真空控制器、隔膜泵、B95真空泵使用。

Note: The supporting products includes chiller, B95 water circulating vacuum pump, vacuum controller, diaphragm pumps

产品型号 Product model	FBXZ-5L	FBXZ-10L	FBXZ-20L	FBXZ-50L
旋转瓶 Rotary flask	5L法兰口 Φ50 Flange mouth Φ50	10L法兰口 Φ125 Flange mouth Φ125	20L法兰口 Φ125 Flange mouth Φ125	50L法兰口 Φ125 Flange mouth Φ125
收集瓶 Receiving flask	3L	5L	10L	20L
转速 Rotation speed	20 -140rpm	20-130rpm	20-130rpm	20 -110rpm
旋转电机功率 Rotary motor power	40W	180W	180W	370W
冷凝管 Condenser pipe	立式双重蛇形管 Vertical dual coilpipe	立式, 主冷+副冷, 高效三回流冷凝管 Vertical type, main condenser + auxiliary condenser, efficient tri-backflow condenser pipe		
浴锅材质 Bath material	不锈钢 Stainless steel			
使用温度范围 Temperature range	RT-100°C			
最大真空度 Maximum vacuum degree	-0.096Mpa			
蒸发能力 Evaporative capacity	Water ≥2L/h Alcohol ≥4L/h	Water ≥4L/h Alcohol ≥6.5L/h	Water ≥5L/h Alcohol ≥11L/h	Water ≥10L/h Alcohol ≥19L/h
升降功能 Lifting function	电动升降 Electric lifting			
升降行程 Lifting stroke	0-150mm	0-160mm	0-190mm	0-180mm
电源 Power supply	220V/50Hz	220V/50Hz	380V/50Hz	380V/50Hz
整机功率 Overall power	1.5Kw	3Kw	4.5Kw	9Kw
外形尺寸 Dimension	830x400x1100mm	990x550x1650mm	1160x600x1780mm	1350x770x2150mm

SHORT PATH MOLECULAR DISTILLATION

短程分子蒸馏

短程分子蒸馏（短程蒸馏）是一项新的分离技术，是解决常规蒸馏技术所不能解决的问题。它能在极高真空下依据分子运动平均自由程差别，在远低于液体沸点的温度下实现“液-液”分离，主要是利用刮板式系统强制将液体成膜而进行蒸发或蒸馏的一种高效蒸发、蒸馏设备，也可以进行脱臭，脱泡反应及配套加热、冷却等单元操作，可广泛适用于食品、精细化工、电子材料、塑料工程及聚合物(如多元醇、脂肪酸、多元酚类化合物、聚氨脂、环氧树脂、乳脂、单甘脂、香精香料、重油以及石蜡油)的分离提纯等。该系统还可用于从工业废液中回收有机溶剂的作用。特别适用于高沸点、热敏性、易氧化物料的分离和提纯。



Short path molecular distillation (short-path distillation) is a new separation technique that addresses the problems that conventional distillation techniques can not solve. It can achieve "liquid-liquid" separation at very low vacuum according to the mean free path difference of molecular motion under the temperature of much lower than the liquid boiling point. Mainly the use of scraper system forcing liquid film evaporation or distillation of a highly efficient evaporation, distillation equipment, deodorization, degassing reaction and supporting heating, cooling and other unit operations, can be widely used in food, fine chemicals, electronic materials, plastic engineering and polymer (such as polyols, fatty acids, polyphenols, polyurethanes, epoxy resins, milk fat, GMS, flavors and fragrances, heavy oil and paraffin oil) purification and so on. The system can also be used to recover organic solvents from industrial effluents. Especially suitable for high boiling point, heat-sensitive, easily oxidized material separation and purification.



- ▶ 蒸发筒主体采用G3.3高硼硅玻璃：便于观察物料在不同压力、温度、流量及转速条件下的各种变化（如物料颜色、粘度、成膜效果，出溜临界点等）。有助于获得最佳工艺参数和实验数据。
 - ▶ 可实现精确控温：蒸发筒内系统最高温度可以达到200℃，夹套内最高温度可达300℃。
 - ▶ 传动系统：采用磁力耦合传动装置，确保高速运转下蒸发筒内系统极限压力可达0.001mbar。
 - ▶ 自清洁辊轮成膜或刮板式系统通过离心力将物料成薄膜，提高蒸发效率，减少操作时间。
 - ▶ 高清洁度：物料在分离过程仅与玻璃和PTFE复合材料接触，无其它污染。
 - ▶ 易拆洗维护：全法兰式设计，拆装简便。
 - ▶ 根据客户要求，蒸发筒的规格中Φ60~Φ200可选。
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- ▶ Evaporation tube body using G3.3 borosilicate glass: easy to observe the material under different conditions of pressure, temperature, flow and speed changes (such as material color, viscosity, film-forming effect, out of the critical point, etc.). Help to get the best process parameters and experimental data.
 - ▶ Can achieve precise temperature control: the maximum temperature of the evaporation tube system can reach 200°C, the maximum temperature within the jacket up to 300°C.
 - ▶ Transmission system: the magnetic coupling transmission, to ensure high-speed operation of the evaporation cylinder pressure limit system up to 0.001mbar.
 - ▶ Film self-cleaning roller or scraper system through the centrifugal force of the materia into a film to improve the evaporation efficiency and reduce operating time.
 - ▶ High cleanliness: the material in the separation process only contact with glass and PTFE composite material, no other pollution.
 - ▶ Easy of maintenance: all flange design, easy disassembly.
 - ▶ According to customer requirements, evaporation tube specifications Φ60 -Φ200 optional.

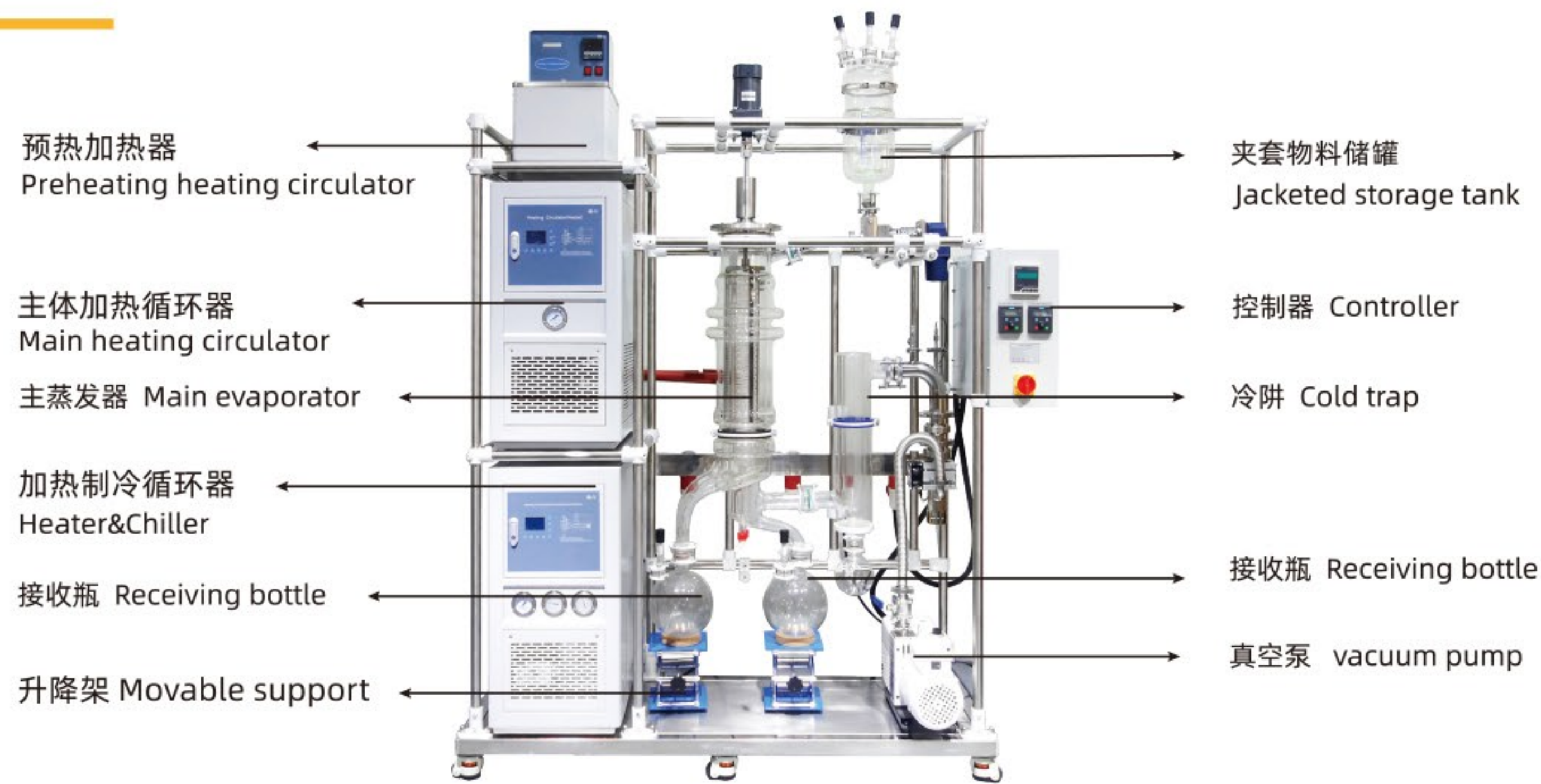


玻璃分子蒸馏设备
Glass molecular distillation



不锈钢分子蒸馏设备
Stainless steel molecular distillation equipmen

玻璃分子蒸馏设备
GLASS MOLECULAR DISTILLATION



玻璃分子蒸馏的优点:

THE ADVANTAGES OF GLASS MOLECULE DISTILLATION: :

采用优等级耐热玻璃制成, 可视性好, 清洗方便, 不易结垢, 可以很好的观察整个实验过程, 方便快速找到最佳工艺条件, 是实验室研发及小规模生产的理想选择。

Adapting the high-grade and heat-resistance glass material, it has good visibility, easy cleaning, and is not easy to scale. It can observe the entire experimental process well and quickly find the best process conditions. It is an ideal choice for laboratory research and small-scale production.

恒温系统
Constant temperature system

- 恒温水浴 (Thermostatic water bath)
- 高低温循环器 (High and Low Temperature Circulator)



控制系统
Control system

- PLC 控制单元 (PLC control unit)
- 变频调速 (Variable frequency controller)



真空系统
Vacuum system

- 真空泵 (Vacuum pump)
- 扩散泵 (Diffusion pump)
- 分子泵 (Molecular pump)



加料&出料系统
Feeding&discharging system

- 可选夹套玻璃加料/接收罐 (Optional: Jacketed feeding tank/collection tank)
- 全自动齿轮泵进出料系统 (Fully automatic gear pump feeding and discharging system)



分子蒸馏设备应用领域:

APPLICATION FIELD OF MOLECULAR DISTILLATION EQUIPMENT



分离多不饱和脂肪酸
Separation of polyunsaturated fatty acids

对维生素的提纯
Purification of vitamin

对帕罗西汀碱原料的分离和提纯
Separation and purification of paroxetine base

提取胡萝卜素和类胡萝卜素
Extract carotene and carotenoid

氨基酸以及葡萄糖衍生物
Amino acid and glucose derivatives were prepared



表面活性剂的提纯
Purification of surfactants

塑料稳定剂
Refining of plastic stabilizers

扩散泵油
Diffusion pump oil

高粘度润滑油
Production of high viscosity lubricants

原油分离
Crude oil separation

羊毛脂以及衍生物的脱臭、脱色
Deodorization and decolorization of lanolin and its derivatives



生产单甘酯类
The production of monoglycerine

浓缩茉莉精油
Concentrated jasmine essential oil

分离果油中的柠檬醛
Separation of citral from fruit oil

精制高碳脂肪醇
Refined high carbon fatty alcohol

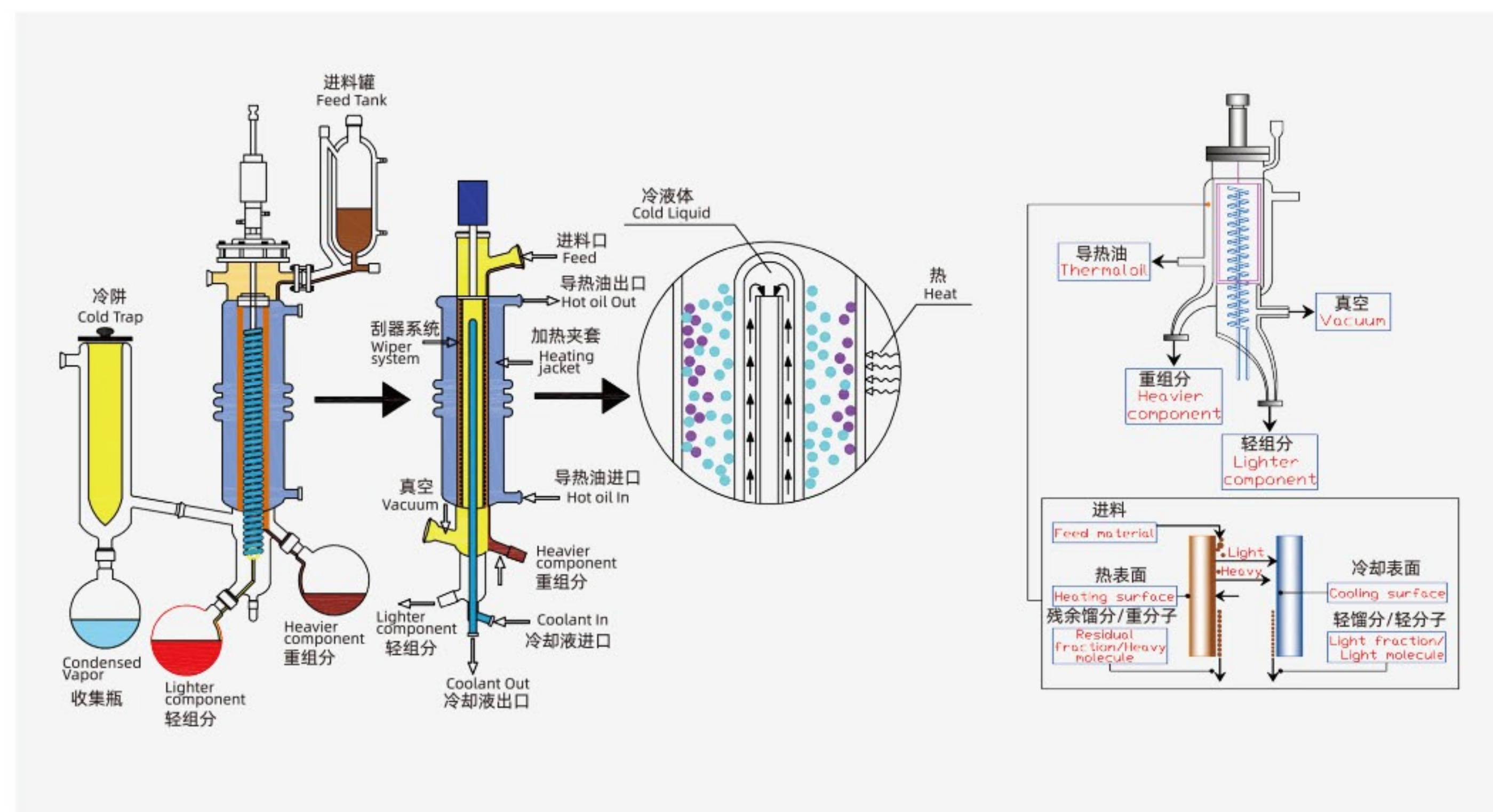
对高酸性油脂进行脱酸
Deacidification of highly acidic oils

精制鱼油、硅油
Refined fish oil, silicone oil

可根据客户物料特性需求,提供全套设计解决方案。

We can provide a full set of design solutions according to customer's material characteristics.

- ▶ 操作温度远低于物料沸点, 处理热敏物料, 生物酸脂、高沸点物、难蒸出的物料有很大优势;
 - ▶ 受热时间极短, 普通蒸馏需要受热数小时的过程, 在短程蒸馏上几十秒就可以完成, 低碳环保且利于保持物料活性;
 - ▶ 属于物理分离过程, 可保持物料自然状态不受污染。广泛用于高附加值物料的脱臭、脱色及提纯。
- ▶ Operating temperature is far below the boiling point of the material, thermal material handling, bio-acid fat, high boiling point, difficult to steam out of the material has great advantages.
- ▶ Heating time is very short, ordinary distillation need to heat a few hours in the process, short path distillation can be done on the tens of seconds, low carbon and environment friendly friendly and conducive to maintaining the material activity.
- ▶ Belong to the physical separation process, can keep the natural state of the material from pollution. Widely used in high value-added materials deodorization, bleaching and purification.



备注:

- 1、可采用齿轮泵连续进料
- 2、可选配PLC控制系统和防爆配置

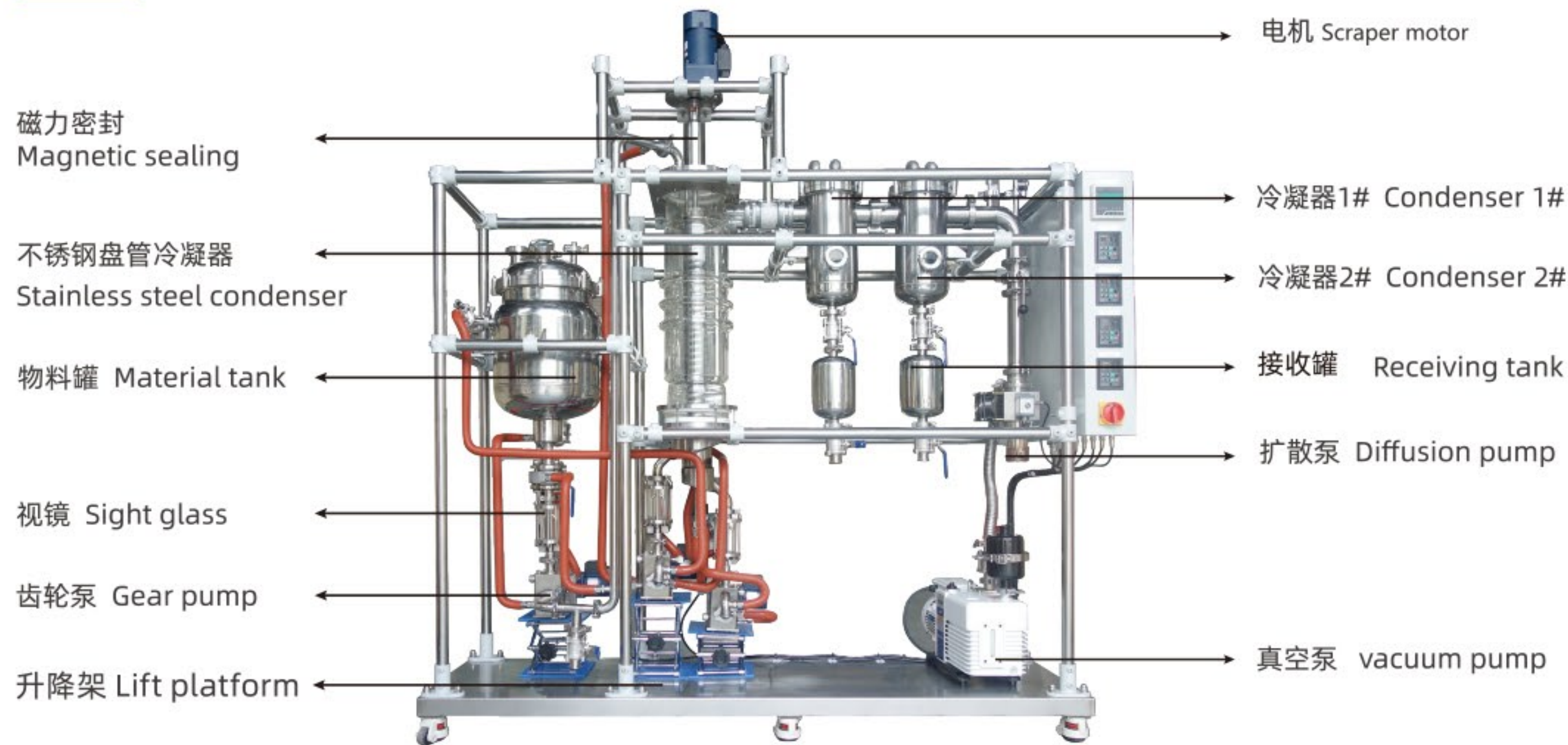
Remarks :

- 1、Gear pump can be used for continuous feeding
- 2、Optional PLC Control system and Explosion-proof configuration

产品型号 Model	NKDF-60	NKDF-80	NKDF-100	NKDF-150	NKDF-200
蒸发筒规格 (Φmm) Evaporation tube specifications	60	80	100	150	200
蒸发筒换热面积 (m ²) Evaporation tube heat transfer area	0.05	0.1	0.15	0.25	0.4
冷凝面积/Condensation area (m ²)	0.03	0.25	0.3	0.4	0.5
样品处理量/Sample throughput (L/h)	0.8	1.5	3	5	8
恒压加料瓶 (L) Constant pressure feeding bottle	1	1	1	2	3
最大转速/Maximum speed (rpm)	500	500	500	500	500
电机功率/Motor power (W)	140	140	180	180	250
刮板驱动密封形式/Scraper drive seal type	磁力耦合密封/Magnetic coupling seal				
刮板类型/Scraper type	组合式推进刮板/Combined push scraper				
刮板材质/Scraper material	复合聚四氟刮板/Composite PTFE scraper				
进料罐容积/Feed tank volume (L)	2.0	2.0	3.0	3.0	5.0
收集瓶容积/Collecting bottle volume (L)	1.0	1.0	1.0~2.0	3.0~5.0	5.0
冷阱/Cold trap	标配/Standard configuration				
冷凝器/Condenser	选配/Optional				
系统真空度/System vacuum (mbar)	<0.5(空载/No-load)				
进料方式/Feeding mode	1、手动扭转阀门进料 (默认) 1. Manual twist valve feed (default); 2、蠕动泵进料适合低真空及粘度低物料 (选配); 2. Peristaltic pump feed suitable for low vacuum and low viscosity material (optional); 3、齿轮泵, 自动连续出料, 速度可调 (选配) 3. Gear pump, automatic continuous discharge, adjustable speed (optional)				
出料方式/Discharge method	1、停机后出料 (默认); Discharge after shutdown (default); 2、手动连续出料 (手动关闭截断阀, 更换收集瓶) (选配); 2. Manual continuous discharging (manually close the cut-off valve, replace the collection bottle) (optional); 3、齿轮泵, 自动连续出料, 速度可调 (选配) 3. Gear pump, automatic continuous discharging, adjustable speed (optional)				
伴热方式/Heat tracing method	1、电加热带伴热 (默认) 2、双层夹套, 导热介质伴热 (选配) 1. Electric heating belt heating (default); 2. Double jacket, heat tracing medium (optional)				
电源/Power supply	AC220V/380V 50Hz/60Hz				

不锈钢分子蒸馏设备

STAINLESS STEEL MOLECULAR DISTILLATION EQUIPMENT



不锈钢分子蒸馏的优点:

THE ADVANTAGES OF GLASS MOLECULE DISTILLATION: :

不锈钢分子蒸馏装置相较于玻璃分子蒸馏装置具有更好的传热效率和蒸发效率,是实验放大后理想的工业化生产设备。

Compared with glass molecular distillation unit, stainless steel molecular distillation unit has better heat transfer efficiency and evaporation efficiency. It is an ideal industrial production equipment after experimental.

组件描述 Component description	数量 Quantity	展示 Part image	组件描述 Component description	数量 Quantity	展示 Part image
齿轮泵 Gear pump	1		真空泵 Vacuum pump	1	
扩散泵 Diffusion pump	1		电机 Motor	1	
控制台 HMI	1		磁力密封刮膜器 Magnetic sealing scraper	1	

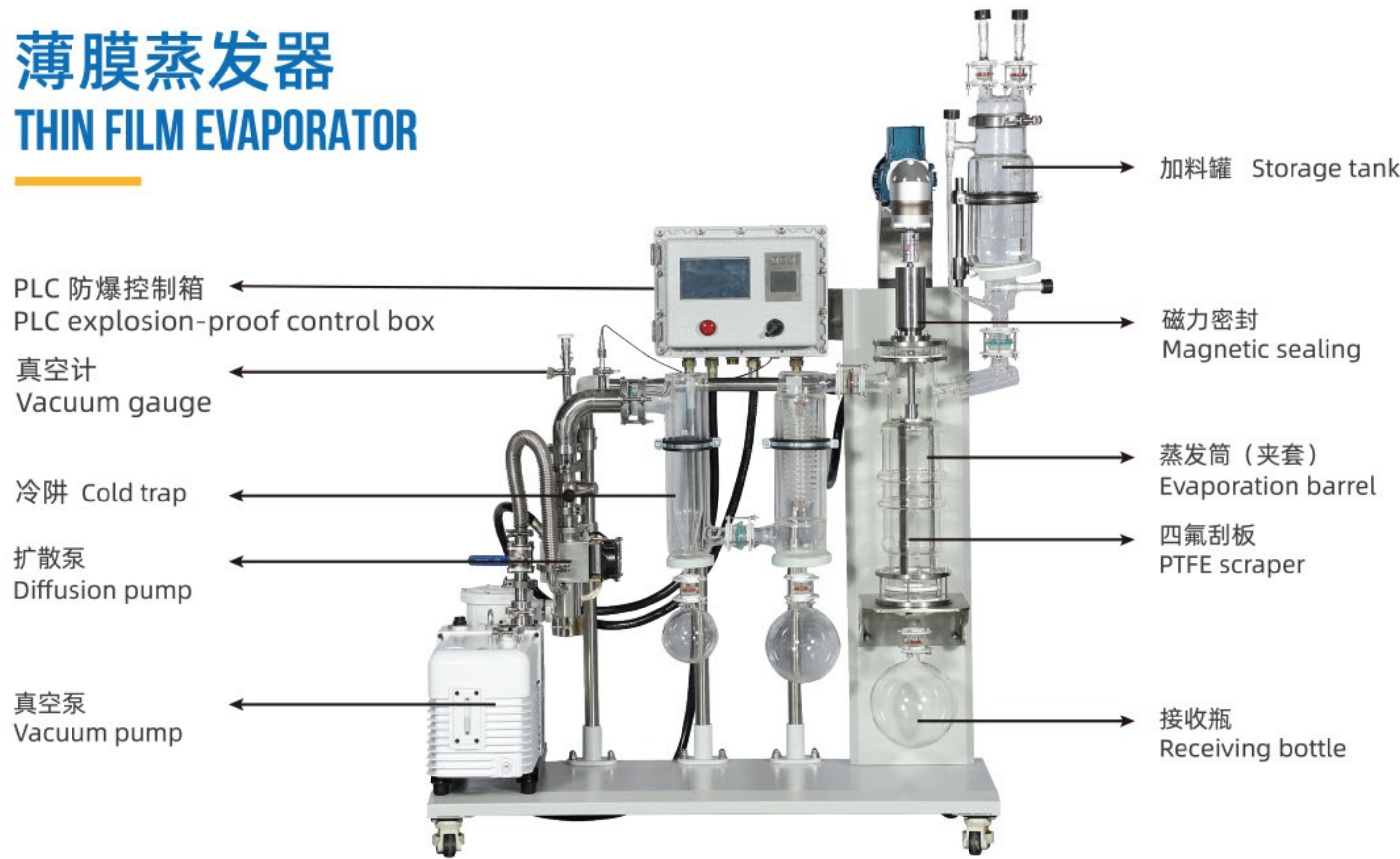
产品型号 Model	NKSS-0.1	NKSS-0.2	NKSS-0.4	NKSS-0.6	NKSS-1.0
蒸发面积 (m ²) Evaporation area	0.1	0.2	0.4	0.6	1.0
内置冷凝面积/Condensation area (m ²)	0.28	0.56	1.34	1.68	2.8
系统真空度/System vacuum (mbar)	0.001	0.001	0.001	0.001	0.001
工作温度/Operating temperature (°C)	300	300	300	300	300
最大转速/Maximum speed (rpm)	500	500	500	500	500
电机功率/Motor power (W)	140	250	370	550	750
刮板驱动密封形式/Scraper drive seal type	磁力耦合密封/Magnetically coupled seal				
刮板类型/Type of scraper	组合式推进刮板/Combined push scraper				
刮板材质/Scraping quality	复合聚四氟刮板/Composite PTFE scraper				
加料&出料系统/Feeding&discharging system	全自动齿轮泵/Fully automatic gear pump				
冷凝器/Condenser	不锈钢盘管冷凝器/Stainless steel condenser				
进料方式/ Feeding mode	1、手动扭转阀门进料 (默认) 1. Manual twist valve feed (default); 2、蠕动泵进料适合低真空及粘度低物料(选配); 2. Peristaltic pump feed suitable for low vacuum and low viscosity material (optional); 3、齿轮泵,自动连续出料,速度可调(选配) 3. Gear pump, automatic continuous discharging, adjustable speed (optional)				
出料方式/Discharge method)	1、停机后出料(默认); Discharge after shutdown (default) 2、手动连续出料(手动关闭截断阀,更换收集瓶)(选配); 2. Manual continuous discharging (manually close the cut-off valve, replace the collection bottle) 3、齿轮泵,自动连续出料,速度可调(选配) 3. Gear pump, automatic continuous discharging, adjustable speed (optional)				
伴热方式//Heat tracing method	1、电加热带伴热(默认) 2、双层夹套,导热介质伴热(选配) 1. Electric heating belt heating (default); 2. Double jacket, heat tracing medium (optional)				
真空系统/vacuum system	1、旋转叶片真空系统(默认); 2、风冷扩散泵(选配); 3、分子泵(选配) 1. Electric heating belt heating (default); 2. Air-cooled diffusion pump (optional) 3. Molecular pump (optional)				
电源/Power supply	AC220V/380V 50Hz/60Hz				



可根据客户物料特性需求,提供全套设计解决方案。

We can provide a full set of design solutions according to customer's material characteristics.

薄膜蒸发器 THIN FILM EVAPORATOR



什么是薄膜蒸发器? WHAT IS THIN FILM EVAPORATOR?

薄膜蒸发器也叫刮膜蒸发器,特点是物料液体沿加热管壁呈膜状流动而进行传热和蒸发,优点是传热效率高,蒸发速度快,物料停留时间短(约10~50秒),因此特别适合热敏性物质的蒸发。

Thin film evaporator, also known as scraping film evaporator, is characterized by the film like flow of material liquid along the heating tube wall for heat transfer and evaporation. Its advantages are high heat transfer efficiency, fast evaporation speed, and short material residence time (about 10-50 seconds), making it particularly suitable for the evaporation of heat sensitive substances.

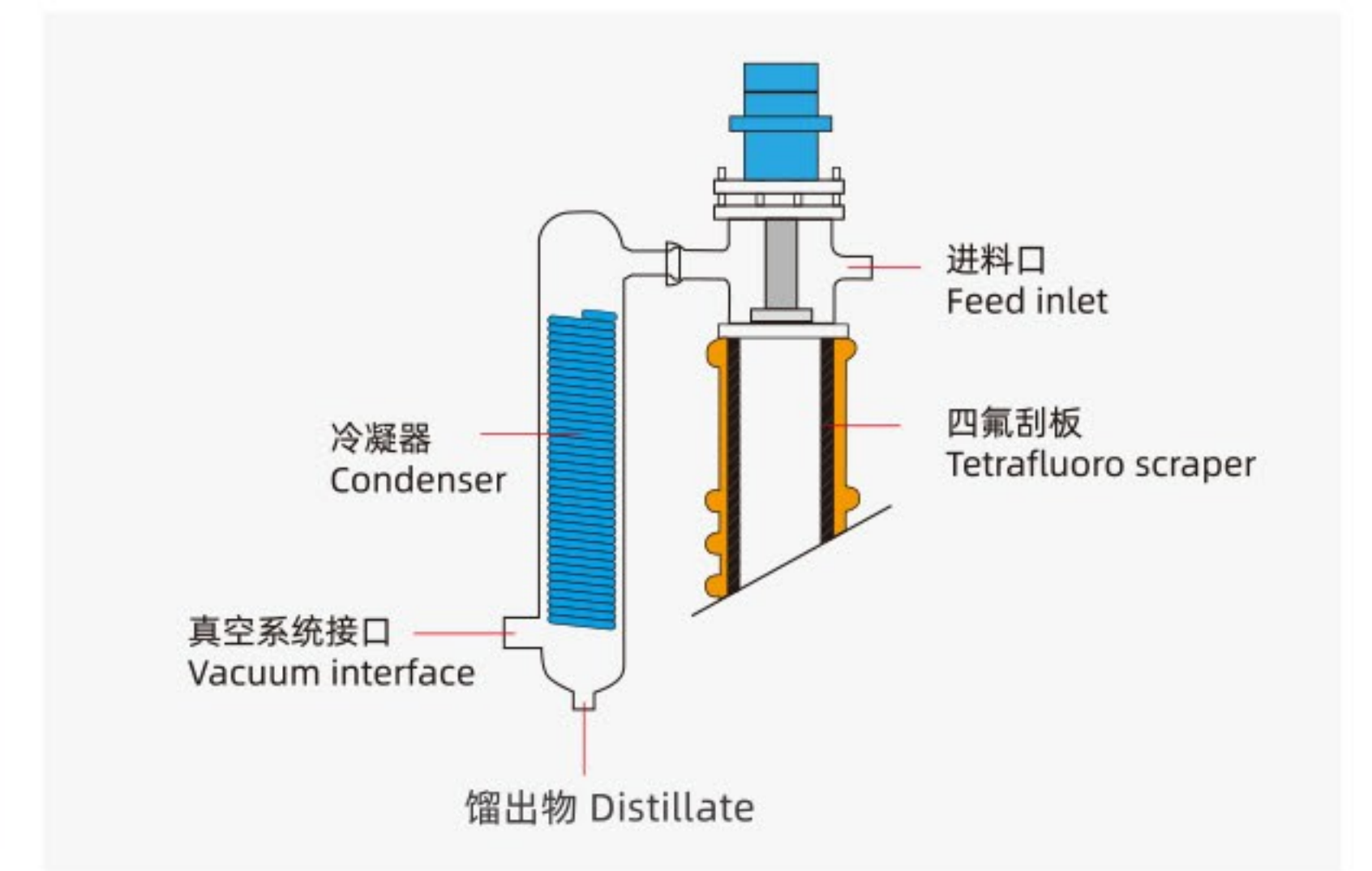


蒸发流程:

EVAPORATION PROCESS:

物料从进料瓶被传送到主夹套蒸发器中,刮膜器将料液刮成一层极薄、呈湍流状的液膜,并以螺旋状向下推进。物料在行进过程中被不断加热,轻组分以蒸汽的形式抽入外置的冷凝器,并以液体的形式被收集,重组分沿蒸发器流入收集瓶。

The material is transferred from the feeding bottle to the main jacket evaporator, and the scraper scrapes the material into an extremely thin, turbulent liquid film, which is pushed down in a spiral shape. The material is continuously heated during its movement, and the light components are drawn into the external condenser in the form of steam and collected in liquid form. The heavy components flow into the collection bottle along the evaporator.



薄膜蒸发器和分子蒸馏的区别?

ADVANTAGES(COMPARED TO GLASS MOLECULAR DISTILLATION UNIT)

它与短程分子蒸馏的主要区别在于减少内置的冷凝器,因此它不属于短程蒸馏设备,薄膜蒸发器适用于蒸馏或蒸发一些沸点相对较低的热敏性物质的浓缩、蒸馏、分离、脱溶、脱臭等。

Compared with glass molecular distillation unit, stainless steel molecular distillation unit has better heat transfer efficiency and evaporation efficiency. It is an ideal industrial production equipment after experimental.

薄膜蒸发器和旋转蒸发器的区别?

THE DIFFERENCE BETWEEN FILM EVAPORATOR AND ROTARY EVAPORATOR?

薄膜蒸发器与旋转蒸发器的区别在于物料在加热面停留受热时间短,避免了旋转蒸发器反复对物料进行加热的弊端,非常适用于热敏性物料的浓缩、蒸馏、脱溶、脱羧、分离、脱臭等。

The difference between film evaporator and rotary evaporator is that the material stays on the heating surface for a short time, which avoids the disadvantages of rotary evaporator repeatedly heating the material. It is very suitable for the concentration, distillation, dissolving, decarboxylation, separation and deodorization of heat-sensitive materials.

复合聚四氟刮板

此刮板不但可以使下流液层得到均匀分布,还可以加快蒸发面积液层的更新,从而强化了物料的传热和传质过程。

Composite PTFE scraper

This scraper can not only uniformly distribute the downstream liquid layer, but also speed up the renewal of the liquid layer in the evaporation area, thus strengthening the heat and mass transfer process of materials.

磁力耦合密封

驱动电机采用磁力耦合传动密封,确保高真空水平。

Magnetic coupling seal

The drive motor adopts magnetic coupling transmission seal to ensure high vacuum level.

透明玻璃系统

一个透明的玻璃系统可以让你轻松驾驭整个过程,还避免了金属设备易结垢和碳化的问题。

Transparent glass system

A transparent glass system allows you to easily control the entire process and avoids the problems of metal equipment that are prone to scaling and carbonization.



应用领域
application area

分离纯化甘油
Separation and purification of glycerol

生产特定浓度烧碱
Production of specific concentration caustic soda

生产苯乙烯
Production of styrene

磷脂浓缩
Phospholipid concentration

栲胶生产
Phospholipid concentration

有机农药甲胺磷的脱溶
Desolvation of organic pesticide methamidophos

部分组件列表
PARTIAL COMPONENT

组件描述 Component description	数量 Quantity	展示 Part image	组件描述 Component description	数量 Quantity	展示 Part image
总控 HMI	1		真空泵 Vacuum pump	1	
齿轮泵 Gear pump	1		刮板电机 Scraper motor	1	
真空计 Vacuum gaugr	1		磁力密封刮膜器 Magnetic sealing scraper	1	

产品型号 Model	NKTFE-60	NKTFE-80	NKTFE-100	NKTFE-150	NKTFE-200	NKTFE-230
蒸发面积/ Evaporation area (m ²)	0.06	0.1	0.15	0.25	0.35	0.5
处理量/Throughput (L/h)	0.1-3	0.3~5	0.5~8	1~15	1.5~20	2~30
冷凝面积/Condensation area (m ²)	0.1	0.15	0.2	0.4	0.5	0.65
刮板数(组)/Numberofscraper (group)	3	3	3	4	4	4
最大成膜量 (m ² /min) Maximum film formation amount	80	130	270	480	670	960
搅拌转速/Stirring speed (rpm)	0~450	0~450	0~450	0~450	0~450	0~450
搅拌控制/Agitation control	变频调速/Variablefrequency speed control					
刮板驱动密封形式/Scraper drive seal type	磁力耦合密封/Magnetic coupling seal					
刮板类型/Type ofscraper	组合式推进刮板/Combined push scraper					
刮板材质/Scrapingquality	复合聚四氟刮板/Composite PTFE scraper					
进料罐容积/Feed tank volume (L)	2.0	2.0	3.0	3.0	5.0	5.0
收集瓶容积/Collecting bottle volume (L)	1.0	1.0	1.0~2.0	3.0 ~5.0	5.0	5.0
冷阱/Cold trap	标配/Standard configuration					
冷凝器/Condenser	选配/Optional					
系统真空度/Systemvacuum(mbar)	<0.5(空载/No-load)					
进料方式/ Feeding mode	1、手动扭转阀门进料(默认) 1. Manual twist valve feed (default); 2、蠕动泵进料适合低真空及粘度低物料(选配); 3、齿轮泵,自动连续出料,速度可调(选配) 3、 Gear pump, automatic continuous discharging, adjustable speed (optional)					
出料方式/Discharge method)	1、停机后出料(默认); Discharge after shutdown (default) 2、手动连续出料(手动关闭截断阀,更换收集瓶)(选配); 3、齿轮泵,自动连续出料,速度可调(选配) 3、 Gear pump, automatic continuous discharging, adjustable speed (optional)					
伴热方式/Heat tracing method	1、电加热带伴热(默认) 2、双层夹套,导热介质伴热(选配) 1、 Electric heating belt heating(default); 2、 Double jacket, heat tracing medium (optional)					
真空系统/acuum system	1、旋转叶片真空系统(默认);2.风冷扩散泵(选配);3.分子泵(选配) 1、 Electric heating belt heating (default); B. Double jacket, heat tracing medium (optional)					
电源/Power supply	AC220V/380V 50Hz/60Hz					

HEATING CIRCULATOR 加热循环器

液晶版-数控型
LCD- DIGITAL CONTROL

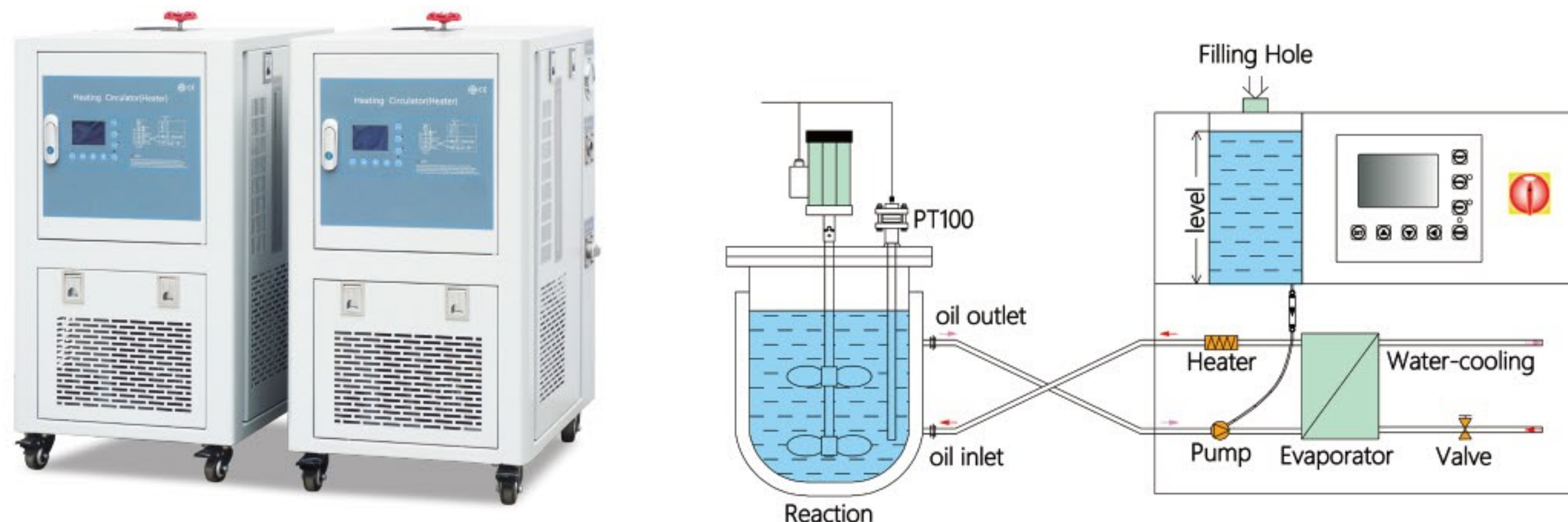
(精准控制反应装置夹套内介质温度; 控温精度: $\leq \pm 0.5^\circ\text{C}$)
Precise control of jacket medium temperature;
Temperature control accuracy: $\leq \pm 0.5^\circ\text{C}$

只需要将设备与反应装置进出液口相连接, 从设备顶部的加液口加入导热介质, 开启加液按钮即可轻松排除系统中的空气, 设定好需求温度, 系统便可自动运行。导热介质在一个密闭系统中, 带有膨胀容器, 膨胀容器中的液体不参与循环, 无论是高温还是低温, 膨胀槽温度为常温到50度, 可以降低导热介质在运行中吸收水分和挥发的风险。在不更换导热介质的情况下, 可以覆盖室温~200/250/300度的控温范围。



Only need to connect the equipment with the liquid inlet and outlet of reactor device, from the top of the equipment liquid inlet add in the heat transfer medium, turn on add liquid button can easily remove the air in the system, set the temperature requirements, the system can run automatically. The heat transfer medium in a closed system, with expansion container, the liquid in the expansion container not participate in the circulation, either high or low temperature, expansion tank temperature is from room temperature to 50 °C, can reduce the risk of heat absorption of moisture and volatile in the operation. In case of no changing the heat transfer medium, can be covered room temperature to 200/250/300°C temperature control range.

原理示意图:
Schematic diagram of the principle:



- ▶ HR系列产品可进行从室温至300度连续升降温。
- ▶ 整个循环管路是密闭的, 高温时没有油雾挥发, 导热油不会被氧化和褐化。
- ▶ 带有校正内循环温度探头PT100的功能。
- ▶ 整个系统的液体循环是密闭的, 系统带有膨胀容器, 膨胀容器和液体循环是绝热的, 并不参与液体循环, 只是机械的连接, 不管液体循环的温度是不是高温情况下, 膨胀容器中的介质低于50度。
- ▶ 高扬程设计, 满足远距离输送导热介质。
- ▶ HR series of products can be carried out continuous heating or cooling from room temperature to 300 degrees.
- ▶ The circulation pipeline is enclosed, high temperature without volatile oil mist, oil will not be oxidized and browning.
- ▶ With the function of correcting internal circulation temperature probe PT100.
- ▶ The liquid circulation system is closed, the system with expansion tank. The expansion vessel and the liquid circulation is adiabatic, does not participate in the liquid circulation, just connected. Although the temperature of liquid circulation is under the condition of high temperature, medium temperature in expansion tank is lower than 50 °C.
- ▶ High lift design, to meet the requirements of long-distance transferring of heat transfer medium

产品型号 Model	温度范围 Temperature range (°C)	加热 Heating (KW)	泵流量 Pump flow (L/min)	压力 Pressure (bar)	冷却量 Cooling capacity (KW)			
					300°C	200°C	100°C	50°C
HR-2A35W	RT~200	3.5	35	0.8	/	3.5	1.5	0.5
HR-3A35W	RT~300	3.5	35	0.8	3.5	3.5	1.5	0.5
HR-2A50W	RT~200	5.5	50	1.0	/	5.5	4	0.8
HR-3A50W	RT~300	5.5	50	1.0	5.5	5.5	4	0.8
HR-2A100W	RT~200	10	75	1.5	/	10	10	1.2
HR-3A100W	RT~300	10	75	1.5	10	10	10	1.2
HR-2A150W	RT~200	15	110	1.5	/	15	15	2.5
HR-3A150W	RT~300	15	110	1.5	15	15	15	2.5
HR-2A200W	RT~200	20	110	2.0	/	20	15	3.2
HR-3A200W	RT~300	20	110	2.0	20	20	15	3.2
HR-2A250W	RT~200	25	150	2.0	/	25	20	5.5
HR-3A250W	RT~300	25	150	2.0	25	25	20	5.5
...

注/Note:
1、可定制350°C/400°C的加热循环器
Customizable 350°C/400 °C heating circulator
2、以上型号均可定制防爆系统 Exd II BT4、CT4、ATEX、正压防爆等
Above product model could customize explosion-proof system Exd II BT4,CT4, ATEX, etc
3、特殊电压可定制
Special voltage is optional

HEATING CIRCULATOR 加热循环器

液晶版-触摸型
LCD-TOUCH SCREEN

(精准控制反应装置内物料或夹套内介质温度; 控温精度: $\leq \pm 0.5^\circ\text{C}$)
Precise control of material or jacket medium temperature;
Temperature control accuracy: $\leq \pm 0.5^\circ\text{C}$

只需要将设备与反应装置进出口相连接, 从设备顶部的加液口加入导热介质, 开启加液按钮即可轻松排除系统中的空气, 设定好需求温度, 系统便可自动运行。导热介质在一个密闭系统中, 带有膨胀容器, 膨胀容器中的液体不参与循环, 无论是高温还是低温, 膨胀槽温度为常温到50度, 可以降低导热介质在运行中吸收水分和挥发的风险。在不更换导热介质的情况下, 可以覆盖室温~200/250/300度的控温范围。

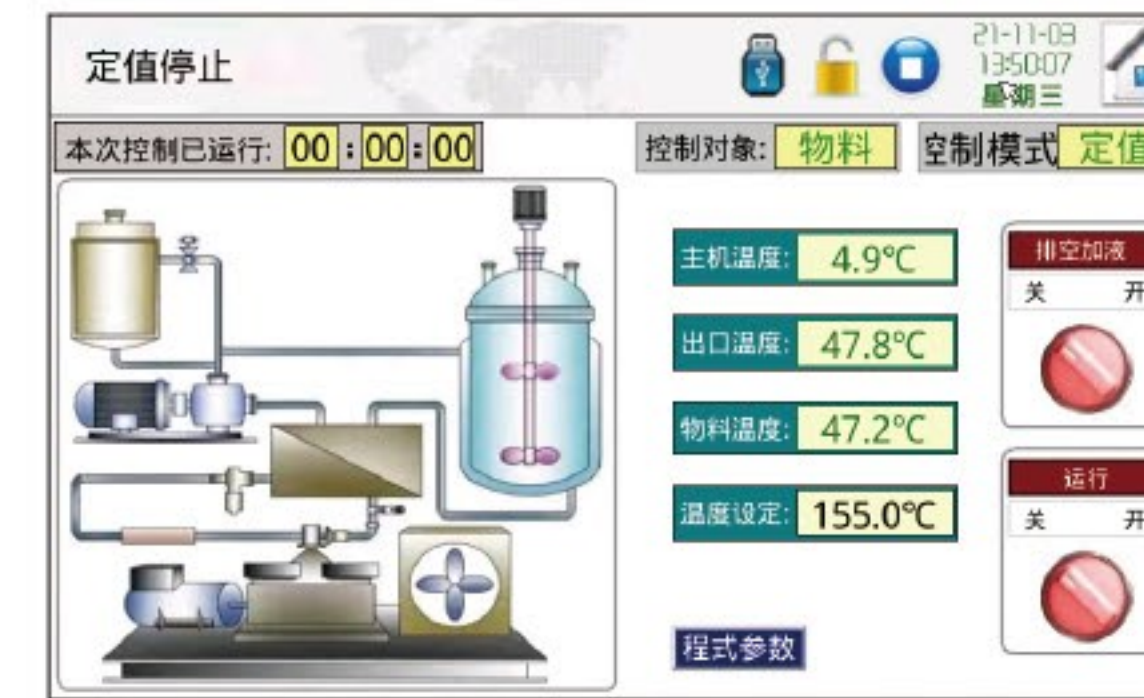


- ▶ 采用全密闭管道式设计, 采用高效板式热交换器, 降低导热液需求量的同时提供系统的热量利用率, 达到快速升降温度。
- ▶ 采用带前馈自适应可编程控制器, 可以精确控制反应釜物料温度, 而且系统在控制过程不过冲、不回调。
- ▶ 最多可存储编写25组程序, 且每组程序可编写45段, 充分保证满足在不同物料情况下的温度需求。使用人员只需要根据不同物料调出需求程序, 即可实现精确温度控制, 避免过程人为操作, 提高产品稳定性。
- ▶ 7寸彩色触摸屏显示与输入, 控制系统提供: USB接口、RS232接口、PT100输入接口、故障报警输出接口。
- ▶ 温度过程控制曲线图在高分辨率彩色触摸屏可以显示, 包括油温、设定目标值、反应釜物料控制温度值, 方便查询整个过程控制情况。采用USB数据存储接口, 只要直接插入U盘, 即可将整个控温过程数据记录。
- ▶ 导热油循环管路全密闭设计, 无油雾和吸水情况, 保证了实验的安全和导热油的使用寿命。
- ▶ 具有自我诊断功能, 过载继电器、热保护装置等多种安全保障功能。
- ▶ 高扬程设计, 满足远距离输送导热介质。
- ▶ The design of full closed pipeline, adopt high efficiency plate heat exchanger, reducing the demand for heat conduction fluid while providing the system's heat utilization rate, to achieve temperature rapid rise and fall.
- ▶ The use of feedforward adaptive programmable controller, can accurately control the temperature of the reactor material, and the system in the control process, no overshoot, no callback.
- ▶ Can store up to write a 25 set of programs, and each program can be written in 45 paragraph. fully guaranteed to meet the temperature requirement in the case of different materials. The user only need to according to the different materials call out procedures. then could achieve accurate temperature control, avoid the process of manual operation, improving the stability of product.
- ▶ 7 inch color touching screen display and input; control system provide: USB interface, RS232 interface, PT100 input interface, fault alarm output interface.
- ▶ Temperature process control charts can be displayed in high resolution color touch screen, including oil temperature, set the target value, the reactor material control temperature value, easy to query the whole process control.
- ▶ Using the USB data storage interface, as long as directly insert USB flash disk, the whole process of temperature control, data could record.
- ▶ Fully closed design of heat conducting oil circulation pipeline, no oil mist and water absorption, to ensure the safety of the experiment and the life of the conductive fluid.
- ▶ It has the function of self-diagnosis, overload relay and thermal protection device etc. multiple security functions
- ▶ High lift design to meet long distance transferring of heat transfer medium

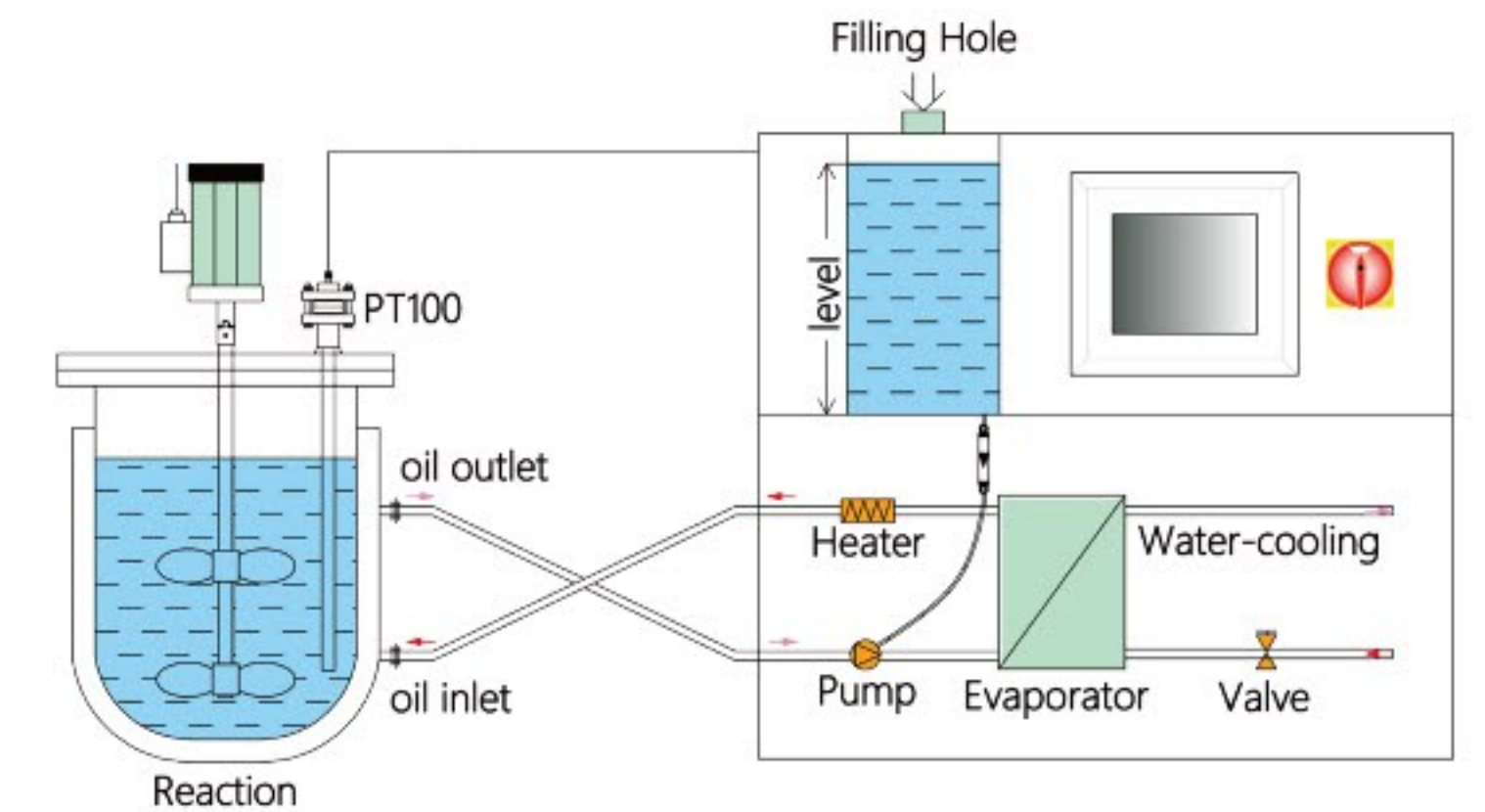
操作面板显示图

OPERATION PANEL DISPLAY DIAGRAM

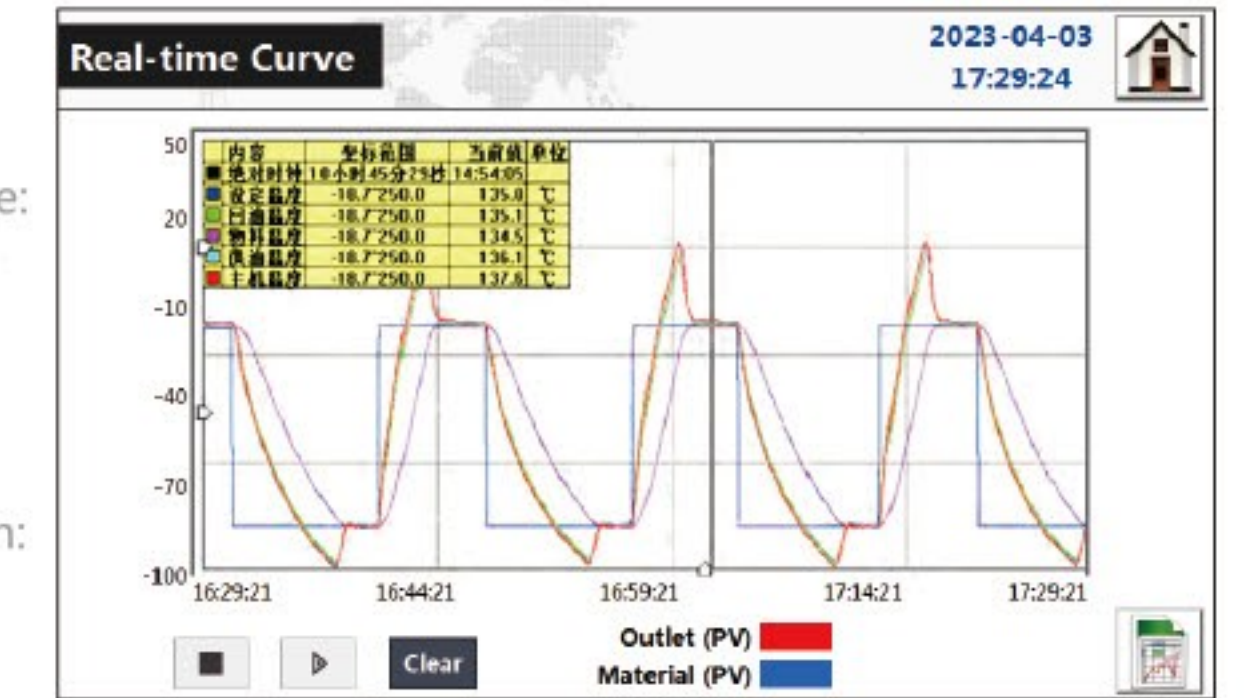
主画面:
Main interface:



原理示意图:
Schematic diagram of the principle:



温度曲线:
Temperature curve:



监视画面:
Monitoring screen:

产品型号 Model	温度范围 Temperature range ($^\circ\text{C}$)	加热 Heating (KW)	泵流量 Pump flow (L/min)	压力 Pressure (bar)	冷却量 Cooling capacity (KW)			
					300 $^\circ\text{C}$	200 $^\circ\text{C}$	100 $^\circ\text{C}$	50 $^\circ\text{C}$
HR-2A35WT	RT~200	3.5	35	0.8	/	3.5	1.5	0.5
HR-3A35WT	RT~300	3.5	35	0.8	3.5	3.5	1.5	0.5
HR-2A50WT	RT~200	5.5	50	1.0	/	5.5	4	0.8
HR-3A50WT	RT~300	5.5	50	1.0	5.5	5.5	4	0.8
HR-2A100WT	RT~200	10	75	1.5	/	10	10	1.2
HR-3A100WT	RT~300	10	75	1.5	10	10	10	1.2
HR-2A150WT	RT~200	15	110	1.5	/	15	15	2.5
HR-3A150WT	RT~300	15	110	1.5	15	15	15	2.5
HR-2A200WT	RT~200	20	110	2.0	/	20	15	3.2
HR-3A200WT	RT~300	20	110	2.0	20	20	15	3.2
HR-2A250WT	RT~200	25	150	2.0	/	25	20	5.5
HR-3A250WT	RT~300	25	150	2.0	25	25	20	5.5
...

注/Note:
1、可定制350 $^\circ\text{C}$ /400 $^\circ\text{C}$ 的加热循环器 Customizable 350 $^\circ\text{C}$ /400 $^\circ\text{C}$ heating circulator
2、以上型号均可定制防爆系统 Exd II BT4、CT4、ATEX、正压防爆等
Above product model could customize explosion-proof system Exd II BT4,CT4, ATEX,etc
3、特殊电压可定制 Special voltage is optional

HEATING REFRIGERATION CIRCULATOR
加热制冷循环器

液晶版-数控型
LCD- DIGITAL CONTROL

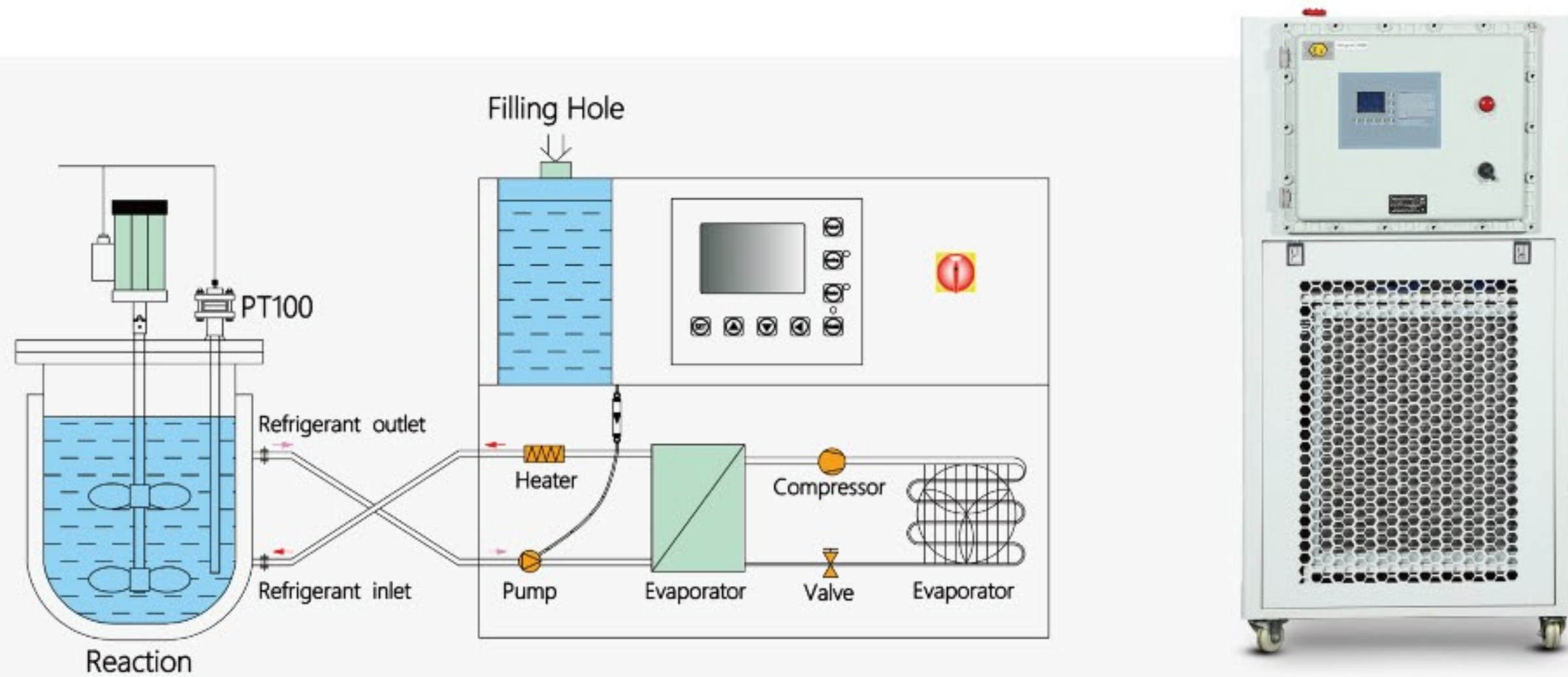
(精准控制反应装置夹套内介质温度; 控温精度: $\leq \pm 0.5^{\circ}\text{C}$)

Precise control of jacket medium temperature;
Temperature control accuracy: $\leq \pm 0.5^{\circ}\text{C}$

只需要将设备与反应装置进出口连接, 从设备顶部的加液口加入导热介质, 开启加液按钮即可轻松排除系统中的空气, 设定好需求温度, 系统便可自动运行。导热介质在一个密闭系统中, 带有膨胀容器, 膨胀容器中的液体不参与循环, 无论是高温还是低温, 膨胀槽温度为常温到 50°C , 可以降低导热介质在运行中吸收水分和挥发的风险。在不更换导热介质的情况下, 可以覆盖 $-135^{\circ}\text{C}\sim+350^{\circ}\text{C}$ 的控温范围。



Only need to connect the equipment with the liquid inlet and outlet of reactor device, from the top of the equipment liquid inlet add in the heat transfer medium, turn on add liquid button can easily remove the air in the system, set the temperature requirements, the system can run automatically. The heat transfer medium in a closed system. With expansion container, the liquid in the expansion container not participate in the circulation, either high or low temperature, expansion tank temperature is from room temperature to 50°C , can reduce the risk of heat absorption of moisture and volatile in the operation. In case of no changing the heat transfer medium, can be covered -135°C to $+350^{\circ}\text{C}$ temperature control range.



Ex 可定制防爆系统 Exd II BT4、CT4、ATEX、正压防爆等
Could customize explosion-proof system Exd II BT4, CT4, ATEX, etc

- ▶ 采用全密闭管道式设计, 采用高效板式热交换器, 降低导热液需求量的同时提供系统的热量利用率, 达到快速升降温度。
 - ▶ 整个液体循环是密闭的系统, 低温时没有水汽的吸收, 高温时没有油雾的产生。
 - ▶ 带LCD液晶显示器的控制器, 可以同时显示温度设定值和实际值, 以及超温报警值, 高效快速, 充液简单。
 - ▶ 保证高温情况下迅速降温, 可实现 $-135^{\circ}\text{C}\sim+350^{\circ}\text{C}$ 连续控温。
 - ▶ 循环管路均为全密闭式设计, 无油雾和吸水情况, 保证了实验人员的人生安全和导热液的使用寿命。
 - ▶ 制冷单元采用美国谷轮或法国泰康压缩机、高温磁力驱动循环泵, 性能稳定, 质量可靠。
 - ▶ 具有自我诊断功能, 冷冻机过载保护, 高压压力开关, 过载继电器、热保护装置等多种安全保障功能。
 - ▶ 高扬程设计, 满足远距离输送导热介质。
 - ▶ 采用多种环保制冷剂, 满足环保要求。
- ▶ The design of full closed pipeline, adopt high efficiency plate heat exchanger, reducing the demand for heat conduction fluid while providing the system's heat utilization rate, to achieve temperature rapid rise and fall.
 - ▶ The whole liquid circulation is a closed system, there is no water vapor absorption at low temperature, no oil mist generated at high temperature.
 - ▶ Controller with LCD display, the temperature setting value and the actual value can be displayed simultaneously, as well as over temperature alarm value, efficient and fast, simple liquid filling.
 - ▶ To ensure rapid cooling under high temperature, can achieve 350°C to -135°C continuous temperature control
 - ▶ The circulating pipeline is fully enclosed, no oil mist and water absorption, to ensure the safety of the experiment person and the life of the conductive fluid.
 - ▶ Refrigeration unit using the American COPELAND or France TECUMSEH compressor, high temperature magnetic drive circulation pump, stable performance, reliable quality.
 - ▶ It has the function of self-diagnosis, refrigerator overload protection; high pressure switch, overload relay and thermal protection device etc. multiple security functions.
 - ▶ High lift design to meet long distance transmission medium.
 - ▶ Using a variety of environmentally friendly refrigerants to meet environmental requirements.

产品型号 Model	温度范围 Temperature range ($^{\circ}\text{C}$)	加热 Heating (KW)	泵流量 Pump flow (L/min)	压力 Pressure (bar)	制冷量 Cooling capacity (KW)					
					250 $^{\circ}\text{C}$	200 $^{\circ}\text{C}$	100 $^{\circ}\text{C}$	0 $^{\circ}\text{C}$	-20 $^{\circ}\text{C}$	-30 $^{\circ}\text{C}$
HRB-2A25	-25~200	2.5	25	1.5	/	2.5	2.5	1.5	1	/
HRB-2A35	-25~200	3.5	35	2	/	3.5	3.5	3	2.1	/
HRB-2A50	-25~200	5.5	50	2	/	5.5	5.5	4.5	2.8	/
HRB-2A70	-25~200	7.5	75	2	/	7.5	7.5	6.2	4.2	/
HRB-2A100	-25~200	10	110	2	/	10	10	8	6	/
HRB-2A150	-25~200	15	110	2	/	15	15	13	9	/
HRB-2A180	-25~200	18	150	2	/	18	18	15	11	/
HRB-2A250	-25~200	25	150	2	/	25	25	21	15	/
HRB-4A25V	-45~250	2.5	25	1.5	2.5	2.5	2.5	2	0.9	0.2
HRB-4A35V	-45~250	3.5	35	1.5	3.5	3.5	3.5	3.1	1.2	0.5
HRB-4A50V	-45~250	5.5	50	1.5	5.5	5.5	5.5	4.3	2	0.8
HRB-4A70V	-45~250	7.5	75	1.5	7.5	7.5	7.5	6.2	2.3	1
HRB-4A100V	-45~250	10	110	1.5	10	10	10	8.8	3.2	1.3
HRB-4A150V	-45~250	15	110	1.5	15	15	15	11	6	4.8
HRB-4A250V	-45~250	25	150	1.5	25	25	25	10	10	6.7

HEATING REFRIGERATION CIRCULATOR 加热制冷循环器

液晶版-触摸型
LCD-TOUCH SCREEN

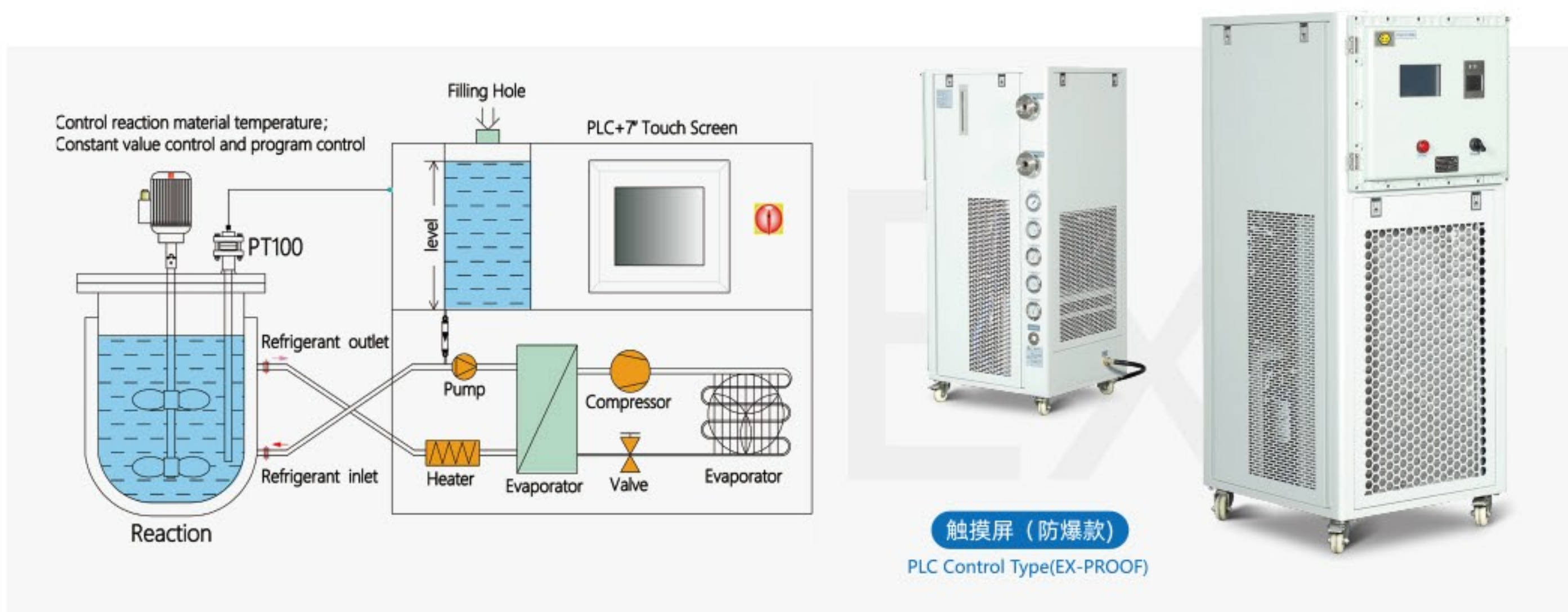
(精准控制反应装置内物料或夹套内介质温度;控温精度: $\leq \pm 0.5^\circ\text{C}$)
Precise control of material or jacket medium temperature;
Temperature control accuracy: $\leq \pm 0.5^\circ\text{C}$

只需要将设备与反应装置进出口相连接,从设备顶部的加液口加入导热介质,开启加液按钮即可轻松排除系统中的空气,设定好需求温度,系统便可自动运行。导热介质在一个密闭系统中,带有膨胀容器,膨胀容器中的液体不参与循环,无论是高温还是低温,膨胀槽温度为常温到 50°C ,可以降低导热介质在运行中吸收水分和挥发的风险。在不更换导热介质的情况下,可以覆盖 $-135^\circ\text{C}\sim+350^\circ\text{C}$ 的控温范围。



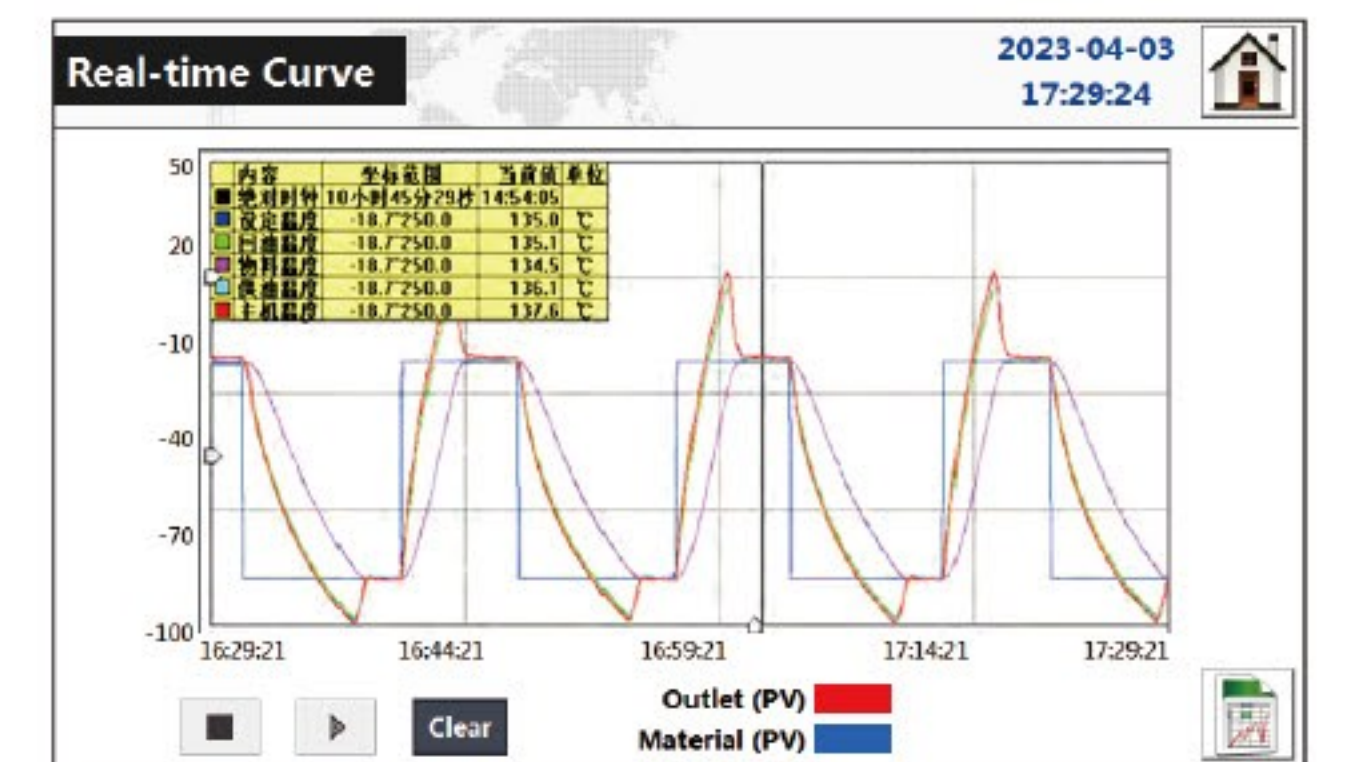
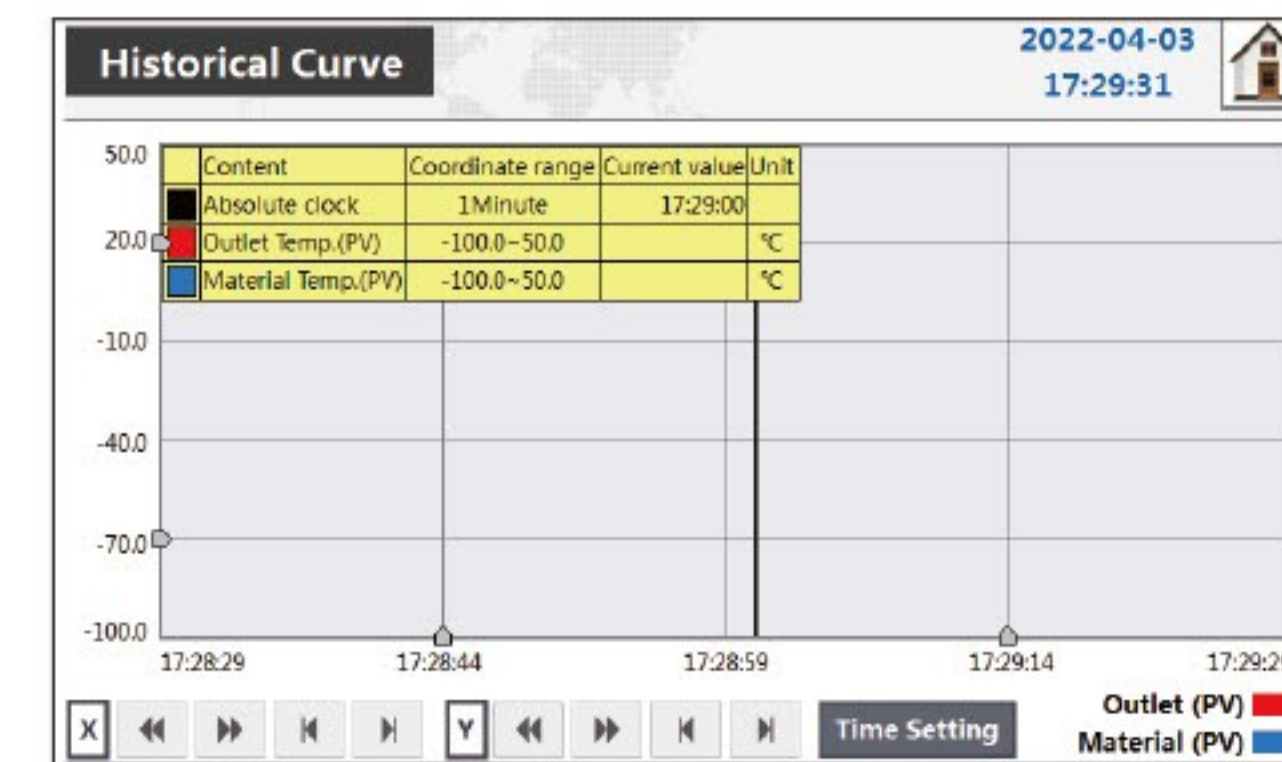
Only need to connect the equipment with the liquid inlet and outlet of reactor device, from the top of the equipment liquid inlet add in the heat transfer medium, turn on add liquid button can easily remove the air in the system, set the temperature requirements, the system can run automatically. The heat transfer medium in a closed system. With expansion container, the liquid in the expansion container not participate in the circulation, either high or low temperature, expansion tank temperature is from room temperature to 50°C , can reduce the risk of heat absorption of moisture and volatile in the operation. In case of no changing the heat transfer medium, can be covered -135°C to $+350^\circ\text{C}$ temperature control range.

原理示意图 SCHEMATIC DIAGRAM OF THE PRINCIPLE:



操作面板显示图

OPERATION PANEL DISPLAY DIAGRAM



五级安全保护:

符合DIN12876安全等级I,II级/fl标准。

- 第一级: 高低液位保护;
- 第二级: 可调节安全温度保护;
- 第三级: 可设定高低温限定保护;
- 第四级: 循环泵安全保护;
- 第五级: 采极限密封高低温流体外泄安全可靠。

Five level security protection:

Complies with DIN12876 safety level I, II/fl standards.

- Level 1: High and low liquid level protection;
- Level 2: Adjustable safety temperature protection;
- Level 3: Can set high and low temperature limit protection;
- Level 4: Safety protection for circulating pumps;
- Level 5: Safe and reliable leakage of high and low temperature fluids under extreme sealing.

强制降温制冷技术:

在其工作温度范围内,任何需要制冷的时刻,都可以激活制冷功能,因此制冷系统可以将高温导热介质快速冷却下来,无需忍受自然降温的漫长过程。

Forced cooling and refrigeration technology:

Within its operating temperature range, the refrigeration function can be activated at any time when cooling is required. Therefore, the refrigeration system can quickly cool down the high-temperature heat transfer medium without having to endure the long process of natural cooling.

- ▶ 采用全密闭管道式设计, 采用高效板式热交换器, 降低导热液需求量的同时提供系统的热量利用率, 达到快速升降温度。
 - ▶ 采用带前馈自适应可编程控制器, 可以精确控制反应釜物料温度, 而且系统在控制过程不过冲、不回调。
 - ▶ 最多可存储编写25组程序, 且每组程序可编写45段, 充分保证满足在不同物料情况下的温度需求。使用人员只需要根据不同物料调出需求程序, 即可实现精确温度控制, 避免过程人为操作, 提高产品稳定性。
 - ▶ 7寸彩色触摸屏显示与输入; 控制系统提供: USB接口、RS232接口、PT100输入接口、故障报警输出接口。
 - ▶ 温度过程控制曲线图在高分辨率彩色触摸屏可以显示, 包括油温、设定目标值、反应釜物料控制温度值, 方便查询整个过程控制情况。采用USB数据存储接口, 只要直接插入U盘, 即可将整个控温过程数据记录。
 - ▶ 导热油循环管路全密闭设计, 无油雾和吸水情况, 保证了实验的安全和导热油的使用寿命。
 - ▶ 制冷单元采用法国泰康压缩机、高温磁力驱动循环泵, 性能稳定, 质量可靠。
 - ▶ 具有自我诊断功能; 冷冻机过载保护; 高压压力开关, 过载继电器、热保护装置等多种安全保障功能。
 - ▶ 高扬程设计, 满足远距离输送导热介质, 采用多种环保制冷剂, 满足环保要求。
- ▶ The design of full closed pipeline, adopt high efficiency plate heat exchanger, reducing the demand for heat conduction fluid while providing the system's heat utilization rate, to achieve temperature rapid rise and fall.
 - ▶ The use of feedforward adaptive programmable controller, can accurately control the temperature of the reactor material, and the system in the control process, no overshoot, no callback.
 - ▶ Can store up to write a 25 set of programs, and each program can be written in 45 paragraph, fully guaranteed to meet the temperature requirement in the case of different materials. The user only need to according to the different materials call out procedures, then could achieve accurate temperature control, avoid the process of manual operation, improving the stability of product.
 - ▶ 7 inch color touching screen display and input, control system provide: USB interface, RS232 interface, PT100 input interface, fault alarm output interface.
 - ▶ Temperature process control charts can be displayed in high resolution color touch screen, including oil temperature, set the target value, the reactor material control temperature value, easy to query the whole process control. Using the USB data storage interface, as long as directly insert USB flash disk, the whole process of temperature control, data could record.
 - ▶ Fully closed design of heat conducting oil circulation pipeline, no oil mist and water absorption, to ensure the safety of the experiment and the life of the conductive fluid.
 - ▶ Refrigeration unit using France TECUMSEH compressor high temperature magnetic drive circulation pump, stable performance, reliable quality.
 - ▶ It has the function of self-diagnosis, refrigerator overload protection; high pressure switch, overload relay and thermal protection device etc. multiple security functions.
 - ▶ High lift design to meet long distance transmission medium.
 - ▶ Using a variety of environmentally friendly refrigerants to meet environmental requirements.

应用实例 / Application field

化工、制药或生物技术领域的反应釜温度;控制搅拌罐的温度;金属(玻璃)双层反应釜;热测试平台;材料测试等设备的冷热源恒温控制。

Reaction temperature in the field of pharmaceuticals or biotechnology, Control the temperature of the mixing tank; Metal (glass) double layer reaction, Equipment for thermal testing and testing of test materials

车间一角, 产品实拍
根据客户需求, 可以覆盖-135°C~+350°C的控温范围。

In the corner of the workshop, product photos can be taken according to customer needs, It can cover a temperature control range of -135 ° C to+350 ° C.



Ex

可定制防爆系统 Exd II BT4、CT4、ATEX、正压防爆等
Could customize explosion-proof system Exd II BT4, CT4, ATEX, etc



防爆型加热制冷循环器

Ex proof heating and cooling circulator (Heater & Chiller)



温度范围: -25°C~+200°C

Temperature range: -25 °C~+200 °C

高温段可扩展到300°C/350°C

High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				200°C	100°C	50°C	20°C	-5°C	-20°C		
HRB-2A25T HRB-2A25WT	2.5	-25~+200	≤0.5	2.5	2.5	2.5	2.5	2	1	20	2
HRB-2A35T HRB-2A35WT	3.5	-25~+200	≤0.5	3.5	3.5	3.5	3.5	3	1.8	35	2
HRB-2A55T HRB-2A55WT	5.5	-25~+200	≤0.5	5.5	5.5	5.5	5.5	4.5	2.8	50	2
HRB-275T HRB-275WT	7.5	-25~+200	≤0.5	7.5	7.5	7.5	7.5	6.6	3.8	75	2
HRB-2A100T HRB-2A100WT	10	-25~+200	≤0.5	10	10	10	10	8	4.6	110	2.5
HRB-2A150T HRB-2A150WT	15	-25~+200	≤0.5	15	15	15	15	12	7	110	2.5
HRB-2A250T HRB-2A250WT	25	-25~+200	≤0.5	25	25	25	25	19	12	150	2.5
HRB-2A380WT	38	-25~+200	≤0.5	38	38	38	38	30	16	200	2.5
HRB-2A600WT	60	-25~+200	≤0.5	60	60	60	60	46	22	250	2.5
HRB-2A950WT	95	-25~+200	≤0.5	95	95	95	95	70	32	400	2.5
HRB-2A130NWT	130	-25~+200	≤0.5	130	130	130	130	80	43	400	2.5
HRB-2A2000WT	200	-25~+200	≤0.5	200	200	200	200	125	65	600	3



温度范围: -45°C~+250°C

Temperature range: -45 °C~+250 °C

高温段可扩展到300°C/350°C

High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				250°C	100°C	20°C	0°C	-20°C	-40°C		
HRB-4A25NT HRB-4A25NWT	2.5	-45~+250	≤0.5	2.5	2.5	2.5	1.8	0.85	0.25	20	2
HRB-4A35NT HRB-4A35NWT	3.5	-45~+250	≤0.5	3.5	3.5	3.5	3	1.5	0.45	35	2
HRB-4A55NT HRB-4A55NWT	5.5	-45~+250	≤0.5	5.5	5.5	5.5	5	2.9	0.9	50	2
HRB-4A75NT HRB-4A75NWT	7.5	-45~+250	≤0.5	7.5	7.5	7.5	7	4.2	1.5	75	2
HRB-4A100NT HRB-4A100NWT	10	-45~+250	≤0.5	10	10	10	10	6	2	110	2.5
HRB-4A1500NT HRB-4A1500NWT	15	-45~+250	≤0.5	15	15	15	15	11	3.8	110	2.5
HRB-4A250NT HRB-4A250NWT	25	-45~+250	≤0.5	25	25	25	25	16	4.7	150	2.5
HRB-4A380NWT	38	-45~+250	≤0.5	38	38	38	38	26	9	200	2.5
HRB-4A600NWT	60	-45~+250	≤0.5	60	60	60	60	34	12	250	2.5
HRB-4A950NWT	95	-45~+250	≤0.5	95	95	95	95	50	18	400	2.5
HRB-4A1300NWT	130	-45~+250	≤0.5	130	130	130	130	70	24	400	2.5
HRB-4A2000NWT	200	-45~+250	≤0.5	200	200	200	200	120	43	600	3

温度范围: -60°C~+250°C | 高温段可扩展到300°C/350°C
Temperature range: -60 °C~+250 °C | High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				250°C	100°C	20°C	-20°C	-40°C	-55°C		
HRB-6A25NT HRB-6A25NWT	2.5	-60~+250	≤0.5	2.5	2.5	2.5	2	0.95	0.25	20	2
HRB-6A35NT HRB-6A35NWT	3.5	-60~+250	≤0.5	3.5	3.5	3.5	3	1.45	0.5	35	2
HRB-6A55NT HRB-6A55NWT	5.5	-60~+250	≤0.5	5.5	5.5	5.5	4.8	2.3	0.75	50	2
HRB-6A75NT HRB-6A75NWT	7.5	-60~+250	≤0.5	7.5	7.5	7.5	6	3.1	0.9	75	2
HRB-6A100NT HRB-6A100NWT	10	-60~+250	≤0.5	10	10	10	8.2	4.8	1.5	110	2.5
HRB-6A150NWT	15	-60~+250	≤0.5	15	15	15	12	7.8	2.8	110	2.5
HRB-6A250NWT	25	-60~+250	≤0.5	25	25	25	25	18	6	150	2.5
HRB-6A380NWT	38	-60~+250	≤0.5	38	38	38	38	23	8	200	2.5
HRB-6A600NWT	60	-60~+250	≤0.5	60	60	60	56	31	11	250	2.5
HRB-6A950NWT	95	-60~+250	≤0.5	95	95	95	80	45	16	400	2.5
HRB-6A1300NWT	130	-60~+250	≤0.5	130	130	130	90	56	20	400	2.5
HRB-6A2000NWT	200	-60~+250	≤0.5	200	200	200	150	93	32	600	3

温度范围: -70°C~+250°C | 高温段可扩展到300°C/350°C
Temperature range: -70 °C~+250 °C | High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				250°C	100°C	20°C	-20°C	-40°C	-60°C		
HRB-7A25NWT	2.5	-70~+250	≤0.5	2.5	2.5	2.5	2	1.3	0.4	20	2
HRB-7A35NT	3.5	-70~+250	≤0.5	3.5	3.5	3.5	3	1.8	0.55	35	2
HRB-7A35NWT	3.5	-70~+250	≤0.5	3.5	3.5	3.5	3	1.8	0.55	35	2
HRB-7A55NWT	5.5	-70~+250	≤0.5	5.5	5.5	5.5	4.9	2.3	0.75	50	2
HRB-7A55NT	5.5	-70~+250	≤0.5	5.5	5.5	5.5	4.9	2.3	0.75	50	2
HRB-7A75NWT	7.5	-70~+250	≤0.5	7.5	7.5	7.5	6	3.1	0.9	75	2
HRB-7A75NT	7.5	-70~+250	≤0.5	7.5	7.5	7.5	6	3.1	0.9	75	2
HRB-7A100NWT	10	-70~+250	≤0.5	10	10	10	8.5	4	1.2	110	2.5
HRB-7A150NWT	15	-70~+250	≤0.5	15	15	15	14	8.8	2.8	110	2.5

注: 系统默认加压3bar
Note: The system defaults to a pressure of 3 bar

温度范围: -80°C~+250°C | 高温段可扩展到300°C/350°C
Temperature range: -80 °C~+250 °C | High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				250°C	50°C	0°C	-40°C	-60°C	-75°C		
HRB-8A25NWT	2.5	-80~+250	≤0.5	2.5	2.5	2.5	1.8	1	0.3	20	1
HRB-8A35NWT	3.5	-80~+250	≤0.5	3.5	3.5	3.5	2.6	1.4	0.42	35	2
HRB-8A55NWT	5.5	-80~+250	≤0.5	5.5	5.5	5.5	3.3	1.6	0.7	50	2
HRB-8A75NWT	7.5	-80~+250	≤0.5	7.5	7.5	7.5	5.8	3	1.3	75	2
HRB-8A100NWT	10	-80~+250	≤0.5	10	10	10	6.4	3.5	1.5	110	2.5
HRB-8A150NWT	15	-80~+250	≤0.5	15	15	15	11	5.8	2.4	110	2.5
HRB-8A250NWT	25	-80~+250	≤0.5	25	25	25	20	10	5	200	2.5
HRB-8A380NWT	38	-80~+250	≤0.5	38	38	38	31	16	8	200	2.5
HRB-8A600NWT	60	-80~+250	≤0.5	60	60	60	48	23	11	400	2.5
HRB-8A800NWT	80	-80~+250	≤0.5	80	80	80	65	32	16	400	2.5

温度范围: -90°C~+250°C | 高温段可扩展到300°C/350°C
Temperature range: -90 °C~+250 °C | High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				250°C	0°C	-40°C	-60°C	-80°C	-85°C		
HRB-9A25NWT	2.5	-90~+250	≤0.5	2.5	2.5	2	1.1	0.35	0.2	20	1
HRB-9A35NWT	3.5	-90~+250	≤0.5	3.5	3.5	2.8	1.9	0.5	0.3	35	2
HRB-9A55NWT	5.5	-90~+250	≤0.5	5.5	5.5	5	2.8	0.8	0.5	50	2
HRB-9A75NWT	7.5	-90~+250	≤0.5	7.5	7.5	6	3.2	1.2	0.7	75	2
HRB-9A100NWT	10	-90~+250	≤0.5	10	10	8	4.2	1.6	0.85	110	2.5
HRB-9A150NWT	15	-90~+250	≤0.5	15	15	12	6	2.1	1.3	110	2.5
HRB-9A250NWT	25	-90~+250	≤0.5	25	25	20	10	3.5	1.9	200	2.5
HRB-9A380NWT	38	-90~+250	≤0.5	38	38	31	16	6	3.5	200	2.5
HRB-9A600NWT	60	-90~+250	≤0.5	60	60	48	24	11	6	400	2.5
HRB-9A800NWT	80	-90~+250	≤0.5	80	80	64	32	15	8	400	2.5

温度范围: -100°C~+135°C | 高温段可扩展到300°C/350°C
Temperature range: -100 °C~+135 °C | High temperature can be extended to 300 °C/350 °C

产品型号 Model	加热 Heating (KW)	温度范围 Temperature range (°C)	控温精度 Accuracy (±°C)	制冷量 Cooling capacity (KW)						泵流量 Pump flow (L/min)	压力 pressure (bar)
				135°C	0°C	-60°C	-80°C	-90°C	-100°C		
HRB-10A35WT	3.5	-100~+135	≤0.5	3.5	3.5	2.8	1.9	0.7	0.45	35	2
HRB-10A55WT	5.5	-100~+135	≤0.5	5.5	5.5	5	2.8	1.2	0.7	50	2
HRB-10A75WT	7.5	-100~+135	≤0.5	7.5	7.5	6.2	3.4	1.6	0.9	75	2
HRB-10A100WT	10	-100~+135	≤0.5	10	10	8	4.1	2	1.2	110	2.5
HRB-10A150WT	15	-100~+135	≤0.5	15	15	9	5	3	1.8	110	2.5
HRB-10A250WT	25	-100~+135	≤0.5	25	25	15	8	4.8	2.9	200	2.5
HRB-10A380WT	38	-100~+135	≤0.5	38	38	23	13	7.5	4.5	200	2.5
HRB-10A600WT	60	-100~+135	≤0.5	60	60	38	22	12	7.2	400	2.5
HRB-10A800WT	80	-100~+135	≤0.5	80	80	52	30	16	9.5	400	2.5

注: 系统默认加压3bar
Note: The system defaults to a pressure of 3 bar

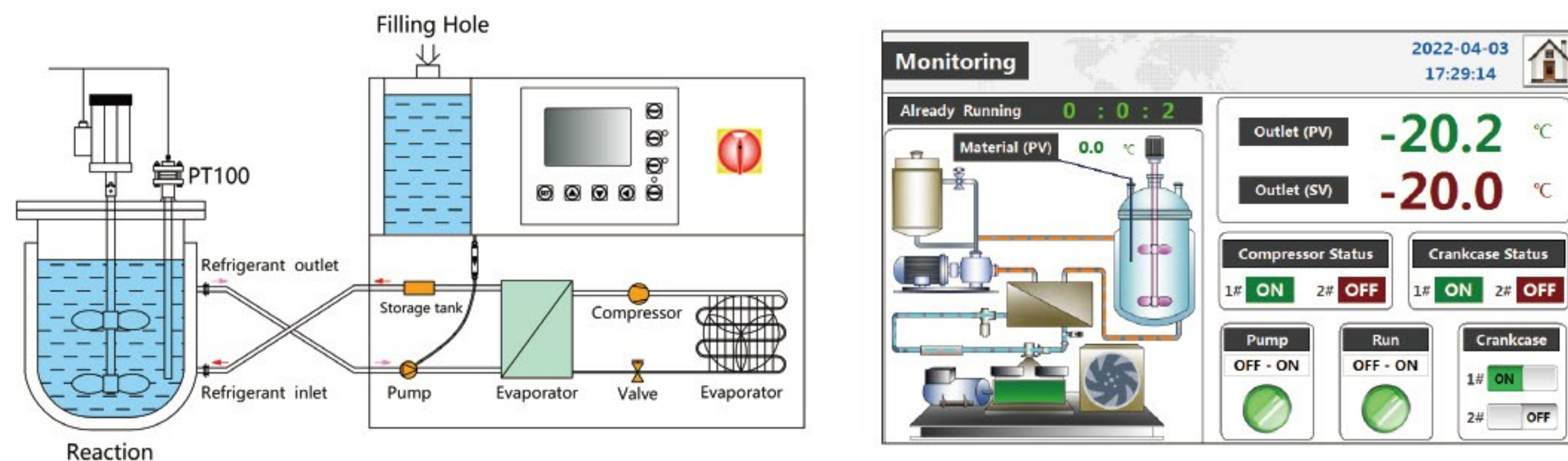
LOW TEMPERATURE CIRCULATOR

低温制冷循环器

- ▶ 循环制冷介质: 合成导热油、工业酒精或水兑乙二醇混合液进行循环制冷, 节约资源。
- ▶ 严密的循环管路设计, 防止循环水污染, 延长循环水的使用时间。
- ▶ 多重安全保护, 运行更可靠。
- ▶ 原装进口压缩机, 复叠过冷制冷技术。
- ▶ 采用过冷技术, 保证可以低温时温度的稳定性。
- ▶ 可设定开启压缩机和关断压缩机温差。
- ▶ 环境温度监测功能, 防止系统运行环境温度过高。多种故障报警(超温报警、传感器报警、高压报警、压缩机过热报警、液位报警)。
- ▶ 采用全密闭设计, 低温运行过程无吸水, 保证冷导热介质的纯度。防止冰晶, 提供导热液寿命; 高性能循环泵, 可保证每天连续24小时运行, 采用板式冷热交换器, 提供换热效率。



- ▶ Cycle cooling medium: HTF, industrial alcohol or water-glycol mixture is circulated against the refrigeration, conservation of resources, tight loop piping design, prevent water pollution cycle, extending the cycle time of the use of water
- ▶ Multiple safety protection, more reliable
- ▶ Imported compressor, cold cascade refrigeration technology
- ▶ Using cold technology to ensure the stability of low temperatures
- ▶ It can be set to turn on the compressor and turn off the compressor temperature difference
- ▶ Ambient temperature detection function to prevent the system operating environment temperature is too high
- ▶ A variety of fault alarm (over-temperature alarm, sensor alarm, high pressure alarm, compressor overheating alarm, level alarm)
- ▶ A fully enclosed design, low temperature process without running water, to ensure the purity of the cold heat transfer medium, to prevent ice crystals, providing thermal fluid life;
- ▶ High-performance circulating pump, can ensure continuous operation 24 hours a day
- ▶ Using cold plate heat exchanger to provide heat transfer efficiency



结构示意图
STRUCTURE DIAGRAM

- A、转换开关 Switch
- B、冷却窗 Cooling window
- C、万向轮 Universal wheel
- D、液位指示器 Liquid Level Indicator
- E、连接线 Connecting line
- F、压力计 Pressure gauge
- G、冷却水入口 Cooling water inlet



标准型 (防爆)
STD Type(EX-PROOF)



触摸屏 (防爆)
PLC Control Type(EX-PROOF)



室外实拍/Outdoor live shooting

应用领域 / Application field

应用于要维持在低温条件下工作的重化工、能源、食品、制药、生物工程、冶金等工业生产过程。
Applied in the work need maintain under low temperature conditions of heavy, energy, food, pharmaceutical, biological engineering, metallurgy and other industrial production process.

温度范围: -25°C~30°C
Temperature range: -25 °C~30 °C

产品型号 Model	LX-0250	LX-0400	LX-0700	LX-1000	LX-1450	LX-2000	LX-2600	
温度范围 Temperature range	-25°C~30°C							
温控及显示 Temperature control and display	ASET 多功能控制器, 可选配彩色触摸屏操作及显示 ASET multi-function controller, optional color touch screen operation and display							
温控选择 Temperature control selection	冷媒介质出口温度控制 Control the temperature of refrigerant outlet							
通讯协议 Communication Protocol	MODBUS RTU协议 RS485 接口 MODBUS RTU protocol RS485 interface							
温度反馈 Temperature feedback	内置冷媒介质 PT100 反馈 The built-in refrigerant medium PT100 feedback							
制冷量 Refrigeration output	0°C	1.5KW	2.4KW	4KW	7.5KW	10KW	15KW	20KW
	-10°C	1KW	1.5KW	2.7KW	6.3KW	8KW	12KW	15KW
	-20°C	0.55KW	0.8KW	1.5KW	3.5KW	5KW	7.3KW	10KW
循环泵流量 Circulating pump flow rate	Max20L/min	Max20L/min	Max35L/min	Max35L/min	Max75L/min	Max75L/min	Max110L/min	
压力 Pressure	1.5bar	1.5bar	2.5bar	2.5bar	2.5bar	2.5bar	2.5bar	
储液罐容积 Storage tank volume	15L	15L	25L	25L	40L	60L	80L	
压缩机 Compressor	法国泰康 (法国原装) 或艾默生谷轮 TECUMSEH or COPELAND							
蒸发器 Evaporator	板式冷热交换器 Plate heat exchanger							
操作面板 Operation panel	触摸按键设置, LCD液晶屏显示Touch button, LCD screen display							
安全防护 Safety protection	制冷机组过载保护、高压压力开关、过载继电器、热保护装置等多种安全保护功能 Equipped with overload protection of refrigeration unit, high pressure switch, overload relay, thermal protection device, and other safety protection functions							
制冷剂 Refrigerant	R404A							
冷媒输出接口 Refrigerant output interface	DN15	DN20	DN20	DN20	DN20	DN20	DN25	
供电电源 Power supply	AC220V/50Hz	AC220V/50Hz	AC220V/50Hz	AC380V/50Hz	AC380V/50Hz	AC380V/50Hz	AC380V/50Hz	
总功率 Total power	1.5KW(Max)	2KW(Max)	2.5KW(Max)	3.5KW(Max)	5KW(Max)	6.5KW(Max)	8.5KW(Max)	
外型尺寸 Dimension	400*600*1150 mm	400*600*1150 mm	500*680*1350 mm	500*680*1350 mm	650*700*1650 mm	750*750*1800 mm	850*850*1850 mm	
外壳材质 Shell material	冷轧板喷塑(可选配 SUS304 外壳) Cold rolled plate spray (optional SUS304 shell)							
选配电源 Optional power supply	单相AC110V/220V/60Hz; 三相AC220V-480V/60Hz							

温度范围: -45°C~30°C
Temperature range: -45 °C~30 °C

产品型号 Model	LX-4018	LX-4040	LX-4062	LX-4090	LX-40A1	LX-40A2	
温度范围 Temperature range	-45°C~30°C						
温控及显示 Temperature control and display	ASET 多功能控制器, 可选配彩色触摸屏操作及显示 ASET multi-function controller, optional color touch screen operation and display						
温控选择 Temperature control selection	冷媒介质出口温度控制 Control the temperature of refrigerant outlet						
通讯协议 Communication Protocol	MODBUS RTU协议 RS485 接口 MODBUS RTU protocol RS485 interface						
温度反馈 Temperature feedback	内置冷媒介质 PT100 反馈 The built-in refrigerant medium PT100 feedback						
制冷量 Refrigeration output	-10°C	1.5KW	3.2KW	4.5KW	6.2KW	8.3KW	12KW
	-20°C	1.2KW	2.7KW	3.8KW	5.5KW	7KW	10KW
	-40°C	0.4KW	0.8KW	1.2KW	1.5KW	2.1KW	3KW
循环泵流量 Circulating pump flow rate	Max20L/min	Max20L/min	Max35L/min	Max35L/min	Max75L/min	Max75L/min	
压力 Pressure	1.0bar	1.5bar	1.5bar	1.5bar	1.5bar	1.5bar	
储液罐容积 Storage tank volume	15L	15L	25L	25L	40L	60L	
压缩机 Compressor	法国泰康 (法国原装) 或艾默生谷轮 TECUMSEH or COPELAND						
蒸发器 Evaporator	板式冷热交换器 Plate heat exchanger						
操作面板 Operation panel	触摸按键设置, LCD液晶屏显示Touch button, LCD screen display						
安全防护 Safety protection	制冷机组过载保护、高压压力开关、过载继电器、热保护装置等多种安全保护功能 Equipped with overload protection of refrigeration unit, high pressure switch, overload relay, thermal protection device, and other safety protection functions						
制冷剂 Refrigerant	R404A						
冷媒输出接口 Refrigerant output interface	DN15	DN20	DN20	DN20	DN20	DN20	
供电电源 Power supply	AC220V/50Hz	AC220V/50Hz	AC220V/50Hz	AC380V/50Hz	AC380V/50Hz	AC380V/50Hz	
总功率 Total power	1.5KW(Max)	2.5KW(Max)	3.5KW(Max)	4.8KW(Max)	6KW(Max)	6.5KW(Max)	
外型尺寸 Dimension	400*600*1250 mm	400*600*1250 mm	500*680*1450 mm	500*680*1450 mm	650*700*1650 mm	750*750*1800 mm	
外壳材质 Shell material	冷轧板喷塑(可选配 SUS304 外壳) Cold rolled plate spray (optional SUS304 shell)						
选配电源 Optional power supply	单相AC110V/220V/60Hz; 三相AC220V-480V/60Hz						

 温度范围: -65°C~-20°C
Temperature range: -65 °C~-20 °C

产品型号 Model	LX-6518	LX-6530	LX-6562	LX-6590	LX-65A1	LX-65A2	
温度范围 Temperature range	-65°C~-20°C						
温控及显示 Temperature control and display	ASET 多功能控制器, 可选配彩色触摸屏操作及显示 ASET multi-function controller, optional color touch screen operation and display						
温控选择 Temperature control selection	冷媒介质出口温度控制 Control the temperature of refrigerant outlet						
通讯协议 Communication Protocol	MODBUS RTU协议 RS485 接口 MODBUS RTU protocol RS485 interface						
温度反馈 Temperature feedback	内置冷媒介质 PT100 反馈 The built-in refrigerant medium PT100 feedback						
制冷量 Refrigeration output	-20°C	0.85KW	1.5KW	2.5KW	3.4KW	4.8KW	7.2KW
	-40°C	0.7KW	1.2KW	2.1KW	2.8KW	4KW	6KW
	-60°C	0.4KW	0.6KW	1.2KW	1.6KW	2KW	3KW
循环泵流量 Circulating pump flow rate	Max20L/min 1bar	Max20L/min 1bar	Max35L/min 1.5bar	Max35L/min 1.5bar	Max75L/min 1.5bar	Max75L/min 1.5bar	
压力 Pressure							
储液罐容积 Storage tank volume	15L	15L	25L	25L	40L	60L	
压缩机 Compressor	法国泰康 (法国原装) 或 艾默生谷轮 TECUMSEH or COPELAND						
蒸发器 Evaporator	板式冷热交换器 Plate heat exchanger						
操作面板 Operation panel	触摸按键设置, LCD液晶显示屏Touch button, LCD screen display						
安全防护 Safety protection	制冷机组过载保护、高压压力开关、过载继电器、热保护装置等多种安全保护功能 Equipped with overload protection of refrigeration unit, high pressure switch, overload relay, thermal protection device, and other safety protection functions						
制冷剂 Refrigerant	R404A/R23						
冷媒输出接口 Refrigerant output interface	DN15	DN20	DN20	DN20	DN20	DN20	
供电电源 Power supply	AC220V/50Hz 2.5KW(Max)	AC380V/50Hz 3KW(Max)	AC380V/50Hz 4KW(Max)	AC380V/50Hz 5.8KW(Max)	AC380V/50Hz 7KW(Max)	AC380V/50Hz 9KW(Max)	
总功率 Total power							
外型尺寸 Dimension	400*600*1250 mm	500*680*1350 mm	650*700*1650 mm	650*700*1650 mm	650*700*1650 mm	750*750*1800 mm	
外壳材质 Shell material	冷轧板喷漆(可选配 SUS304 外壳) Cold rolled plate spray (optional SUS304 shell)						
选配电源 Optional power supply	单相AC110V/220V/60Hz; 三相AC220V-480V/60Hz						

 温度范围: -80°C~-20°C
Temperature range: -80 °C~-20 °C

产品型号 Model	LX-8018	LX-8030	LX-8062	LX-8090	LX-80A1	LX-80A2	
温度范围 Temperature range	-80°C~-20°C						
温控及显示 Temperature control and display	ASET 多功能控制器, 可选配彩色触摸屏操作及显示 ASET multi-function controller, optional color touch screen operation and display						
温控选择 Temperature control selection	冷媒介质出口温度控制 Control the temperature of refrigerant outlet						
通讯协议 Communication Protocol	MODBUS RTU协议 RS485 接口 MODBUS RTU protocol RS485 interface						
温度反馈 Temperature feedback	内置冷媒介质 PT100 反馈 The built-in refrigerant medium PT100 feedback						
制冷量 Refrigeration output	-40°C	0.6KW	1.4KW	2.8KW	3.4KW	4.8KW	7.2KW
	-60°C	0.4KW	0.8KW	1.6KW	2.1KW	4KW	6KW
	-75°C	0.2KW	0.5KW	0.9KW	1.2KW	2KW	3KW
循环泵流量 Circulating pump flow rate	Max20L/min 1.0bar	Max20L/min 1bar	Max35L/min 1.5bar	Max35L/min 1.5bar	Max75L/min 1.5bar	Max75L/min 1.5bar	
压力 Pressure							
储液罐容积 Storage tank volume	15L	15L	25L	25L	40L	60L	
压缩机 Compressor	法国泰康 (法国原装) 或 艾默生谷轮 TECUMSEH or COPELAND						
蒸发器 Evaporator	板式冷热交换器 Plate heat exchanger						
操作面板 Operation panel	触摸按键设置, LCD液晶显示屏Touch button, LCD screen display						
安全防护 Safety protection	制冷机组过载保护、高压压力开关、过载继电器、热保护装置等多种安全保护功能 Equipped with overload protection of refrigeration unit, high pressure switch, overload relay, thermal protection device, and other safety protection functions						
制冷剂 Refrigerant	R404A/R23						
冷媒输出接口 Refrigerant output interface	DN15	DN20	DN20	DN20	DN20	DN20	
供电电源 Power supply	AC220V/50Hz 3KW(Max)	AC380V/50Hz 4KW(Max)	AC380V/50Hz 5.5KW(Max)	AC380V/50Hz 7KW(Max)	AC380V/50Hz 8.7KW(Max)	AC380V/50Hz 11.5KW(Max)	
总功率 Total power							
外型尺寸 Dimension	500*680*1350 mm	500*680*1350 mm	650*700*1650 mm	650*700*1650 mm	750*750*1850 mm	850*850*1850 mm	
外壳材质 Shell material	冷轧板喷漆(可选配 SUS304 外壳) Cold rolled plate spray (optional SUS304 shell)						
选配电源 Optional power supply	单相AC110V/220V/60Hz; 三相AC220V-480V/60Hz						

XC SERIES ULTRASONIC CELL CRUSHER XC系列超声波细胞破碎仪

XC系列超声波细胞粉碎机(又称:超声波细胞破碎仪、超声波乳化机、超声波裂解仪)是一种利用超声波在液体中产生空化效应的多功能、多用途仪器;应用于多种动植物、病毒、细胞、细菌及组织的破碎,同时可用来乳化、分离、均化、提取、消泡、清洗、纳米材料的制备、分散及加速化学反应等。该机已被广泛用于生物学、微生物学、物理学、动物学、农学、制药等领域的教学、科研、生产。

该机是新款产品,功能全,借鉴国外产品流线型外观设计,性能可靠。仪器采用中央微机集中控制,大屏幕液晶显示。超声时间,功率输出任意设定,样品温度在线监测、频率微机跟踪、故障自动报警。

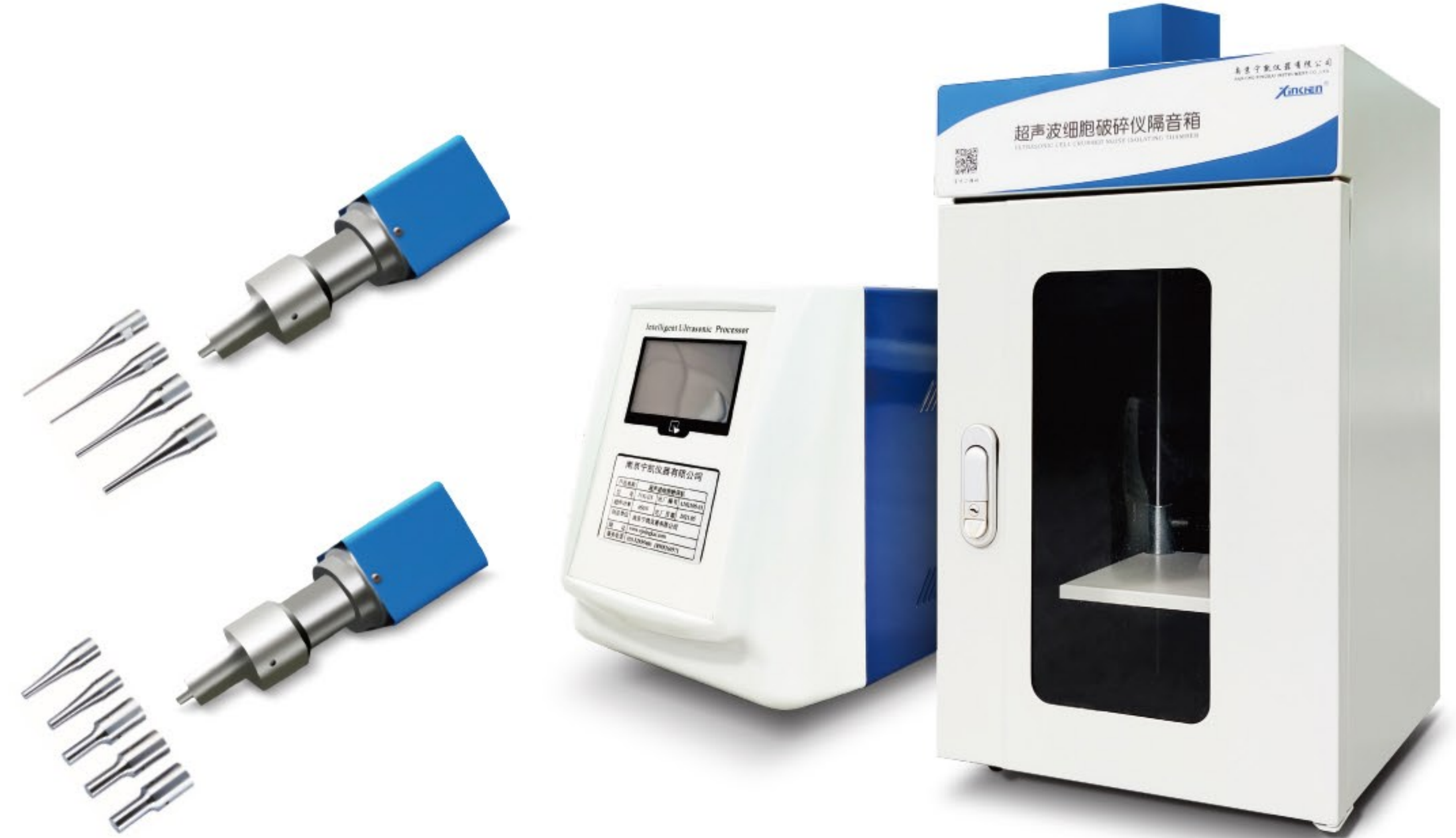


XC series ultrasonic cell crushing device is a multifunctional instrument that generated cavitation effect in liquid by using ultrasonic. It can be used to disintegrate cells of various kinds of animals and plants, viruses, bacteria, tissues as well as to reshape inorganic substances. It can also be used in emulsification, separation, distribution, collection cleaning and nano-material preparation, dispersion acceleration of chemical reactions, etc. It has wide applications in teaching, researching, and manufacturing in many fields such as biology, microbiology, physics zoology, agriculture and pharmacology. As a new type of ultrasonic cell crushing device, it has complete functions, novel appearance and reliable performance. It has a large-screen display and centralized control by a central computer. The ultrasonic time and power can be set. Besides, such functions as sample temperature display, actual frequency display, computerized tracking and automatic trouble warning can all be displayed in the large LCD screen.

产品型号	Product model	XC-IID
频率	Frequency(KHz)	20~25
功率	Power(W)	950
随机变幅杆	Random amplitude transformer(Φ)	6
可选配变幅杆	Optional amplitude transformer(Φ)	2、3、10、15
破碎容量	Crushing capacity (ml)	0.2~600
占空比	Duty ratio (%)	0.1~99.9
电源	Power source	220V/50Hz
整机净重	Net Weight of Machine(kg)	13.5
电源机箱尺寸	Power supply chassis size(mm)	400*280*220
隔音箱尺寸	Soundproof box size(mm)	285*290*480

特点: 采用PWM控制开关电源, 功率连续可调, 稳定性好, 可储存51组实验数据(带USB/RS232接口, 可实现远程控制)
Characteristic: Using PWM control switch power supply, power can be adjusted continuously, good stability, Can store 51 sets of experimental data, (With USB/RS232 interface, Remote control can be achieved.)

超声波细胞破碎仪组合 ULTRASONIC CELL CRUSHER



隔音箱/soundproof box

产品型号 Model	XC88-IIN	XC92-IIN	XC96-IIN	XC98-IIN	XC92-IIDN	XC98-IIIDN	XC99-IIIDN
频率 Frequency(KHz)	20~25	20~25	20~25	19~20.5	20~25	19~20.5	19~20.5
功率 Power(W)	250	650	150	1200	900	1200	1800
随机变幅杆 Random amplitude transformer (Φ)	6	6	6	20	6	20	25
可选配变幅杆 Optional transformer (Φ)	2、3	2、3、8、10、15	2、3	15、22、25	2、3、8、10、15	15、22、25	15、20、22、28
破碎容量 Crushing capacity (ml)	0.2~200	0.2~500	0.2~100	50~1000	0.2~600	50~1000	50~1200
占空比 Duty ratio (%)				0.1~99.9			
温度监测范围 Temperature detection range (°C)				0~100			
电源 Power source				220V/50Hz			

INDUSTRIAL ULTRASONIC TREATMENT EQUIPMENT

工业型超声波处理设备

一般的反应釜对粉状物质在液相中的粉碎、分散、混合都采用的是机械搅拌，其处理时间和过程将非常长，特别是对于直径小于10um的固体粒子在液体中的分散，因固体粒子在搅拌过程中的混合速率及质量转移速率都已达到极限值而变成常量，此时即使再加大搅拌的转速，其反应也不会有所改善。超声波高压反应釜就是利用超声波的分散、粉碎、活化等多重效应，其作用可破坏溶剂结构，改善反应活性，分散粉碎粒子，使其粒径进一步减小。

经试验证明：超声波高压反应釜对粉状物质在液相中的超细级粉碎、石油乳化提取和纳米级分散能起到显著的作用，同时对由粉状物质参与的反应、乳化反应和均相反应等也能起到加速反应的效果。



The powder material is dispersed in the liquid phase, and the general reaction kettle is crush and mix the powder material by mechanical mixing, the processing time will be very long, especially for solid particles dispersed in a liquid with a diameter of less than 10um. Because after a period of mixing, the mixing rate and mass transfer rate of the solid particles in the mixing process have reached the limit value to become constant, even if the stirring speed increased, the effect of the reaction will not be improved. Ultrasonic high pressure reactor is the use of ultrasonic dispersion, crushing, activation and other multiple effects to destroy the solvent structure, improve the reaction activity, disperse crushed particles, to further reduce the diameter of the wire. The test proved that: ultrasonic reactor play a significant role in the superfine grinding, oil emulsification extraction and dispersed in nano scale for the powder material in liquid phase. At the same time, it can accelerate the reaction, emulsifying reaction and homogeneous reaction of powdery substance.

产品型号 Model	NKG-0.5KW	NKG-1.0KW	NKG-1.5KW	NKG-2.0KW	NKG-3.0KW
谐振频率 Resonant frequency (KHZ)	20±1				
功率 Power(W)	500	1000	1500	2000	3000
输入电压 Input Voltage(V)	220±10%				
最高承受温度 The highest withstand temperature	-80℃ ~ 250℃				
发射头直径 Emission head diameter	50	50	50	50	50
超声波发生器 The ultrasonic generator	模糊程序-智能控制 Fuzzy program-intelligent control DDS 频率自动检测和跟踪 DDS frequency automatic detection and tracking DSP 电路控制 DSP control circuit 超声功率输出可调 Ultrasonic power output adjustable 功率器件-IGBT Power device - IGBT 连续超声时间99小时 Continuous ultrasonic time up to 99 hours				

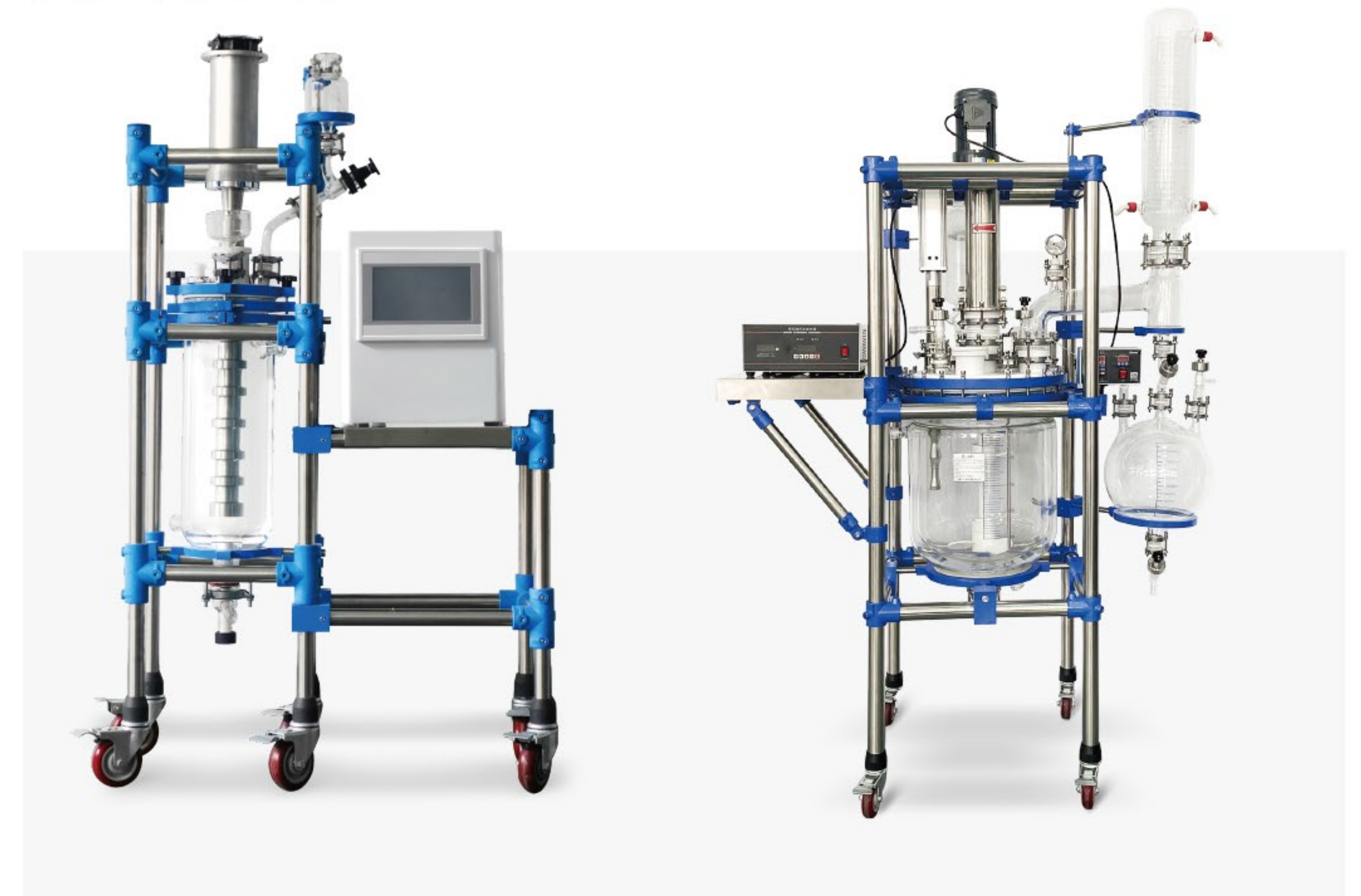
超声波棒

ULTRASONIC BAR



超声反应釜

ULTRASONIC JACKETED REACTOR



SC SERIES SUPER CONSTANT TEMPERATURE WATER ; OIL TANK SC系列超级恒温水、油槽

超级恒温槽是实验室必备的常用设备。它广泛应用于石油、国防、冶金、化工、物理学、生物工程、化学、医药卫生、生命科学、电子仪表、质检计量、工厂实验、高等院校、科研机构等研究部门。

Super thermostatic bath is a commonly laboratory equipment necessary. It is widely used in research institutes, universities, corporate quality control departments and industrial sectors relating to petroleum, chemical engineering, electronic instruments, physics, chemistry, bio-engineering, medicine and health, life science, light industry and food, materials testing and chemical analysis etc.



- ▶ 本机采用智能微机控制、操作简单、温度稳定性好、有上下限温度、超温报警、PID自整定控制。
- ▶ 采用双窗口红绿两种颜色，上窗口测量值红色，下窗口设定值绿色，LED显示。
- ▶ 智能微机可修正温度测量值偏差，数显分辨率达到0.1℃。
- ▶ 特殊用户PID可自调。
- ▶ 有内、外循环，外循环时可将槽内恒温液体外引，可建立第二恒温场。
- ▶ This machine adopts microcomputer intelligent control, simple operation, good temperature stability, with upper limit and lower limit temperature, over temperature alarm, PID self-tuning control.
- ▶ The double window red and green two colors, the upper window measurement is red, the lower window setting is green, LED display.
- ▶ Intelligent computer can correct deviation of the temperature measurement, digital display resolution reaches 0.1 °C
- ▶ Special user self- adjustable PID.
- ▶ There are internal and external circulation, external circulation can let the constant temperature liquid guided outwards, it can create second constant temperature field.



SC-15N



SC-15BN



SC-20N

产品型号 Model	温度范围 Temperature range (°C)	温度波动度 Temperature fluctuation (°C)	工作槽容积 The volume of working tank (mm ³)	工作槽开口 Working slot size (mm ³)	槽深度 Slot depth (mm)	循环泵流量 Circulating pump flow (L/min)
SC-5N	RT-100	±0.05	240*150*150	180*140	150	10
SC-5BN	RT-200	±0.1~0.2	240*150*150	180*140	150	10
SC-10N	RT-100	±0.5	300*200*170	200*200	170	10
SC-10AN	RT-200	±0.1~0.2	300*200*170	200*200	170	10
SC-15N	RT-100	±0.05	280*250*200	235*160	200	10
SC-15AN	RT-200	±0.1~0.2	280*250*200	235*160	200	Internal recycle
SC-15BN	RT-200	±0.1~0.2	280*250*200	235*160	200	10
SC-20N	RT-100	±0.05	500*300*150	310*280	150	10
SC-20AN	RT-200	±0.1~0.2	500*300*150	310*280	150	Internal recycle
SC-20BN	RT-200	±0.1~0.2	500*300*150	310*280	150	10
SC-25N	RT-100	±0.05	280*250*300	235*160	300	10
SC-25AN	RT-200	±0.1~0.2	280*250*300	235*160	300	Internal recycle
SC-30N	RT-100	±0.05	400*330*230	310*280	230	10
SC-30AN	RT-200	±0.1~0.2	400*330*230	310*280	230	Internal recycle
ZC-10N	RT-100	±0.1	280*190*200	180*160	200	10
ZC-18QN	RT-100	±0.05	320*275*200	250*230	200	10
ZC-22QN	RT-100	±0.1	495*295*150	395*285	150	10

DC SERIES LOW TEMPERATURE CONSTANT TEMPERATURE WATER BATH
DC系列低温恒温槽

广泛用于石油、化工、电子仪表、物理、化学、生物工程、医药卫生、生命科学、轻工食品、物性测试及化学分析等研究部门, 高等院校, 企业质检及生产部门, 为用户工作是提供一个热冷受控, 温度均匀恒定的场源, 对实验样品或生产的产品进行恒定温度试验或测试, 也可作为直接加热或制冷和辅助加热或制冷的热源或冷源。

It is widely used in research institutes, universities, corporate quality control departments and industrial sectors relating to petroleum, chemical engineering, electronic instruments, physics, chemistry, bio-engineering, medicine and health, life science, light industry and food, materials testing and chemical analysis etc. It can provide a field source which temperature can be set and the temperature is uniform and constant for the user, experiment or test the samples or products on the condition of constant temperature. It can also be used as a heat source or cold source for a direct heating or cooling and auxiliary heating or cooling.

- ▶ **低噪:** 封闭进口压缩机(斯科普), 制冷系统噪音小;
- ▶ **环保:** 系统采用对环境有好的制冷剂;
- ▶ **清晰:** LCD显示屏, 显示温度、时间等参数, 远处清晰可见;
- ▶ **自启:** 掉电后参数不变, 客户可设上电状态自启与待机;
- ▶ **安全:** 制冷压缩机具有过热过载等自动保护功能;
- ▶ **精准:** 温度波动度 $\pm 0.1^{\circ}\text{C}$;
- ▶ **Low noise:** Sealed imported compressor (SCOPE), low noise in the refrigeration system;
- ▶ **Environmental protection:** The system uses refrigerants that are good for the environment;
- ▶ **Clearness:** LCD display screen, displaying parameters such as temperature and time, clearly visible from afar;
- ▶ **Self start:** After power failure, the parameters remain unchanged, and customers can set the power on state to self start and standby;
- ▶ **Safety:** The refrigeration compressor has automatic protection functions such as overheating and overload;
- ▶ **Precision:** Temperature fluctuation $\pm 0.1^{\circ}\text{C}$;



旋转蒸发/冷凝器 Rotary evaporator Condenser	非接触式超声/粉碎机控温 Non-contact ultrasound Cell crusher	化学反应控温 Chemical reaction Reactor	生物实验/生物样品 Biological experiments Biological samples	电子元器件/半导体检测 Electronic components Semiconductor testing



产品型号 Model	温度范围 Temperature range ($^{\circ}\text{C}$)	温度波动度 Temperature fluctuation degree ($^{\circ}\text{C}$)	工作槽容积 The volume of working tank (mm^3)	工作槽开口 Working slot size (mm^3)	槽深度 Slot depth (mm)	循环泵流量 Circulating pump flow (L/min)	排水口 Drain valve
SDC-6N	-5~100	± 0.05	250*200*150	180*140	150	10	With
DC-1006N	-10~100	± 0.05	250*200*150	180*140	150	10	With
DC-2006N	-20~100	± 0.05	250*200*150	180*140	150	10	With
DC-3006N	-30~100	± 0.1	250*200*150	180*140	150	10	With
DC-4006N	-40~100	± 0.1	250*200*130	180*140	130	10	With
DC-0510N	-5~100	± 0.05	250*200*200	180*140	200	10	With
DC-1010N	-10~100	± 0.05	250*200*200	180*140	200	10	With
DC-2010N	-20~100	± 0.05	250*200*200	180*140	200	10	With
DC-3010N	-30~100	± 0.1	250*200*200	180*140	200	10	With
DC-4010N	-40~100	± 0.1	250*200*200	180*140	200	10	With
DC-1015N	-5~100	± 0.05	280*250*200	235*160	220	15	With
DC-2015N	-20~100	± 0.05	300*250*200	235*160	200	15	With
DC-3015N	-30~100	± 0.1	300*250*200	235*160	200	15	With
DC-4015N	-40~100	± 0.1	300*250*200	235*160	200	15	With
DC-0520N	-5~100	± 0.05	280*250*280	235*160	280	15	With
DC-1020N	-10~100	± 0.05	280*250*280	235*160	280	15	With
DC-2020N	-20~100	± 0.1	280*250*280	235*160	280	15	With
DC-3020N	-30~100	± 0.1	280*250*280	235*160	280	15	With
DC-0530N	-5~100	± 0.05	440*325*200	310*280	200	15	With
DC-1030N	-10~100	± 0.05	440*325*200	310*280	200	15	With
DC-2030N	-20~100	± 0.1	440*325*200	310*280	200	15	With
DC-3030N	-30~100	± 0.1	440*325*200	310*280	200	15	With
DCW-0506N	-5~100	± 0.05	260*200*140	180*140	140	10	With
DCW-2008N	-20~100	± 0.05	280*200*140	235*160	140	10	With
DCW-4006N	-40~100	± 0.1	260*200*140	180*140	140	10	With

GX SERIES HIGH TEMPERATURE WATER BATH GX系列高温循环器

- ▶ GX系列高温循环器是专用于发酵罐、真空玻璃或高压反应釜以及各种大小夹套的配套产品。
- ▶ 高温循环器外循环可将槽内高温热源大流量充进各种夹套的夹层中,使夹套里面的温度逐渐升高,最后在高温条件下夹套里面的物料产生反应。
- ▶ 高温循环器温度精度可精确至 $\pm 0.1^{\circ}\text{C} \sim \pm 0.2^{\circ}\text{C}$,数显分辨率 0.1°C ,外循环泵流量 $8-15\text{L}/\text{Min}$,有自动超温报警,超温过程并自动切断加热。
- ▶ 高温循环器规格从 5L 、 10L 、 15L 、 20L 、 30L 、 50L 、 100L ,可根据不同的夹套选配高温循环器。
- ▶ GX series high temperature water bath is dedicated to the fermentation tank, vacuum glass or autoclave and various sizes of supporting jacketed products.
- ▶ External circulation of high temperature circulating device can put high temperature heat source inside the tank large flow into the interlayer of the various of jacket, made the temperature inside the jacket gradually increased, Finally, in the condition of high temperature, the material inside the jacket react.
- ▶ The temperature precision of high temperature water bath can be accurate to $\pm 0.1 \sim \pm 0.2^{\circ}\text{C}$, display resolution 0.1°C , external circulation pump flow $10-18\text{L}/\text{min}$, automatic temperature alarm, over temperature and automatically cut off the heating process.
- ▶ High temperature circulator specifications have 5L , 10L , 15L , 20L , 30L , 50L , 100L , according to the jacket to choose matching of different high temperature water bath.



GX-2020N



GX-2030N



GX-2050N

产品型号 Model	温度范围 Temperature range ($^{\circ}\text{C}$)	温度波动度 Temperature fluctuation degree	容积 Volume (L)	加热功率 Heating power (KW)	循环泵流量 Circulating pump flow (L/min)	泵扬程 Pump lift
GX-2005N	RT~300	± 0.2	5	1.8	10	2
GX-2010N	RT~300	± 0.2	10	2.2	10	4
GX-2015N	RT~300	± 0.2	15	3	15	4
GX-2020N	RT~300	± 0.2	20	3.7	15	4
GX-2030N	RT~300	± 0.2	30	4.5	15	4
GX-2050N	RT~300	± 0.2	50	5.1	15	4
GX-2100N	RT~300	± 0.2	50	7.1	18	4

HYBRIDIZATION OVEN 分子杂交仪

依据核酸分子杂交仪技术原理,采用智能型数字温度控制器,可作分子杂交,也可作酶联反应的孵育器。与酶免结合可建立全定量或半定量PCR检测方法。在病毒、细菌疾病的基因诊断的临床检测中具有良好的应用效果。

According to the principle of nucleic acid hybridization instrument technology, the intelligent digital temperature controller, can be used as molecular hybridization, can the chain reaction enzyme as incubator. Combined with the free enzyme can establish the quantitative or semi quantitative PCR detection method. It has a good application effect in the clinical detection of gene diagnosis of viral and bacterial diseases.

产品特点/Product characteristics

仪器结构采用模块化设计,外观新颖、温度控制稳定、操作简单可靠、转速稳定、不受外界电源电压影响,杂交过程在连续旋转的杂交瓶内进行,膜与探针完全混合,彻底避免了杂交袋的繁琐封装及放射同位素的泄漏;该仪器工作室具有防辐射功能,可一次装六只杂交管。

The structure of the instrument adopts modularization design, novel appearance, temperature stable and controllable, reliable and easy to operate, speed stabilization, won't be affected by the external power supply voltage. Hybridization process is doing in the continuous rotation hybrid bottle, the cell membrane and the probe can be completely mixed to avoid the cumbersome packaging of hybrid bag and the leak of radioactive isotope. The instrument work space has the function of radiation protection. The instrument can be equipped with 6 hybrid tube.



产品型号	Model	LF-I	LF-III
温度范围	Temperature range	RT+5 $^{\circ}\text{C}$ ~ 100 $^{\circ}\text{C}$	RT+5 $^{\circ}\text{C}$ ~ 100 $^{\circ}\text{C}$
控温精度	Precision of controlling temperature	$\pm 0.5^{\circ}\text{C}$	$\pm 0.5^{\circ}\text{C}$
温度均匀性误差	Temperature fluctuation	$\pm 0.03^{\circ}\text{C}$	$\pm 0.03^{\circ}\text{C}$
温度显示分辨率	Temperature display resolution	0.1°C	0.1°C
温度平衡时间	Temperature equilibrium time	< 20min	< 20min
旋转速度	Rotating speed	$6.5 \pm 0.5\text{r}/\text{min}$	(5-20) $\pm 0.5\text{r}/\text{min}$, Speed adjustable continuously, With enzyme labeled plate shock and amplitude adjustable shock
连续工作时间	Continuous working time	24H	24H
杂交瓶规格	Hybrid bottle size		$\phi 35 \times 220\text{mm}$
电源电压	Supply voltage	220V AC,50Hz	220V AC,50Hz
功率	Power	< 600W	< 600W

UV CROSS-LINKER 紫外交联仪

UV07-II紫外交联仪是一种多用途的254nm紫外辐射系统，主要用于将核酸交联于膜上。还可用于琼脂糖凝胶中DNA的切割、RecA突变筛选、噬菌体二聚体产生的部分限制性内切酶消化、UA灭消除PCR污染等。在紫外灭菌、聚合物紫外处理等方面也有应用价值。

According to the principle of nucleic acid hybridization instrument technology, the intelligent digital temperature controller, can be used as molecular hybridization, can the chain reaction enzyme as incubator. Combined with the free enzyme can establish the quantitative or semi quantitative PCR detection method. It has a good application effect in the clinical detection of gene diagnosis of viral and bacterial diseases.

产品特点/Product characteristics

- ▶ 为使核苷酸固定在杂交膜上，传统的方式是将膜于80℃真空烘箱中烘2小时，而在紫外交联仪上仅需在254nm紫外光下照射几秒钟即可。
- ▶ 紫外照射可使杂交信号比传统烘烤法提高5-10倍。
- ▶ 由于紫外交联仪配置了一种紫外能量程序设计系统 (Joules/cm²)，即其中的时间积分仪连续检测紫外光的照射。当能量吸收值达到设定值时，照射将自动停止。所以不管紫外光源强弱与否、时间差异与否，照射循环均有很好的重复性。
- ▶ 关机信息不丢失，中文液晶屏显示。
- ▶ 可触摸键盘，UV遮挡视窗。
- ▶ 不锈钢紫外曝光室。
- ▶ In order to make the nucleotide fixed in the hybrid membrane, the traditional way is the film is placed at 80 DEG C in vacuum oven drying for 2 hours, but it only need a few seconds to under 254nm UV light irradiation when you use the UV cross-linking apparatus.
- ▶ UV irradiation can make the hybridization signals increased by 5 to 10 times than the traditional baking method.
- ▶ UV crosslinking instrument equipped with a UV energy program design system, The time integral instrument will be continuous monitoring of UV irradiation, when the energy absorption value reaches the set value, the irradiation will automatically stop. So whether the UV light is strong or weak, whether the time difference, the irradiation cycle all has good repeatability.
- ▶ The information is not lost after the shutdown; Chinese LCD screen display information
- ▶ Touchable keyboard; UV shield windows.
- ▶ Stainless steel UV exposure room.



- ▶ UV波长: 254nm (根据用户需求选配365nm,312nm灯管)
- ▶ 曝光时间测量范围: 0-999.9 (分钟), 功率60W
- ▶ 曝光能量测量范围: 0-99.99 (焦耳)
- ▶ UV光源: 5个10W灯管
- ▶ 9个曝光能量、时间设定并可保存
- ▶ UV曝光能量、时间手动设置
- ▶ 外部尺寸: 360*340*310mm
- ▶ 曝光室尺寸: 340*260*150mm
- ▶ UV wavelength: 254nm (Can match the 365nm or 312nm light tube according to the customer request)
- ▶ The measuring range of the exposure time: 0-999.9 minutes, power 60W
- ▶ The measuring range of exposure energy: 0-999.9 joules
- ▶ UV source: 10W light tube×5
- ▶ 9 exposure energy, time can be set and can be saved
- ▶ UV exposure energy; Time can be set manually
- ▶ External dimension: 360mm×340mm×310mm
- ▶ Exposure room dimension: 340mm×260mm×150mm

FLAP TYPE (STERILE) HOMOGENIZER 拍打式 (无菌) 均质器

均质器是用来将不同的物质进行均质，以获得该物质具有代表意义的样本。该装置简单耐用，只需将样品和稀释液加入到无菌的过滤器样品袋中，然后将样品袋放入均质器中，关上门即开始和完成样品的处理。该装置可以有效地分离被包含在固体样品内部和表面的微生物均一样品，确保无菌袋中混合全部的样品具有充分的代表性。

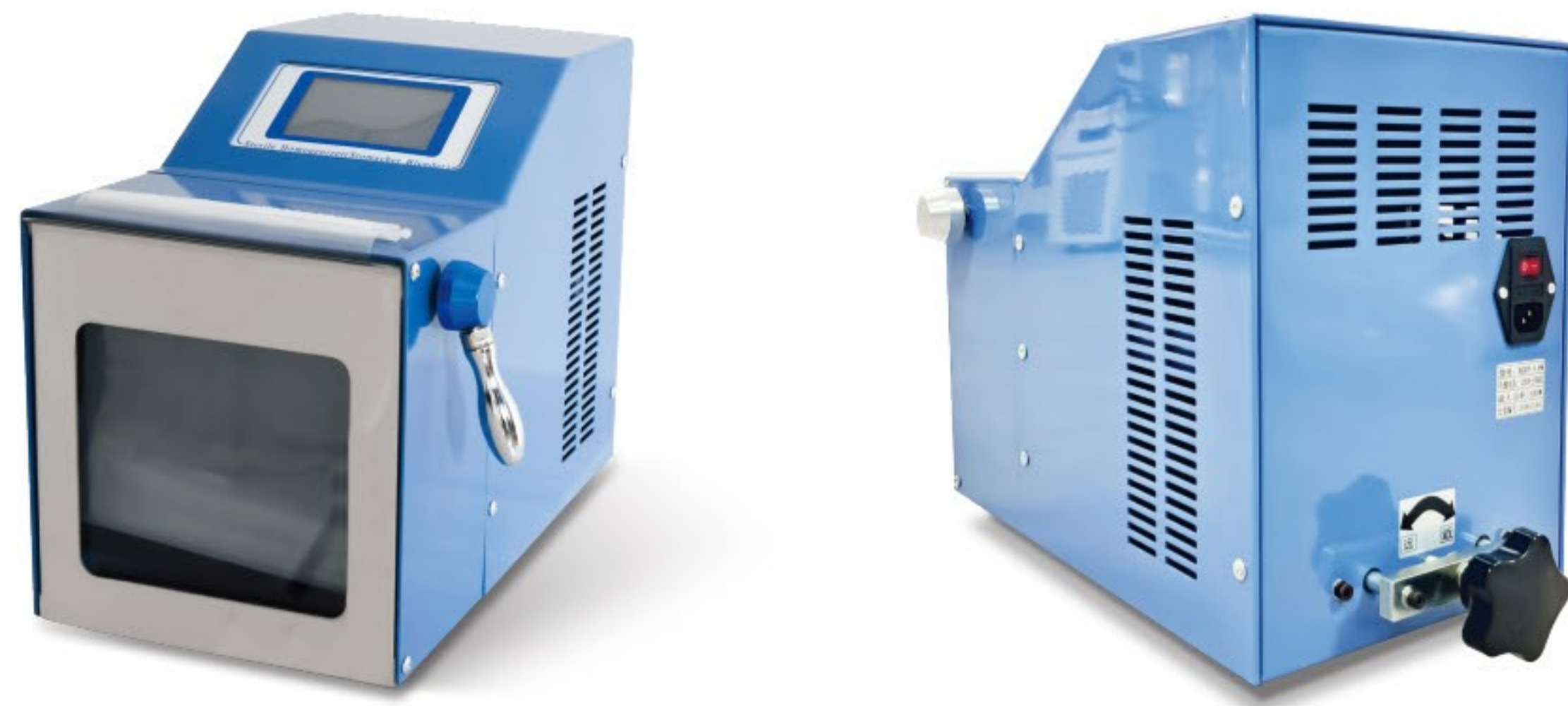
Homogenizer is used to make different substances be homogenized, to obtain a representative sample of the substance. The device is simple and durable, only need to put sample and diluent into the sterile filter sample bag, and then put the sample bag into the homogenizer, finally shut the door to start to processing the sample. The device can effectively isolate the microbial samples in the internal and the surface of solid samples, to ensure that all the samples mixed in aseptic bags have fully representative.

- ▶ 大屏幕液晶显示
- ▶ 可储存3组工作程序 (可多段编程: 可设定任意参数组合)
- ▶ 可调整的均质时间
- ▶ 均质速度可调节或固定
- ▶ 拍击器可调整前后距离
- ▶ 无菌一次性滤袋, 保证卫生和安全
- ▶ 全开启式门, 易于清洗 (带自动停止防夹功能)
- ▶ 可装卸视窗和调整拍击板钢化玻璃安全门, 玻璃透明窗口易于观察
- ▶ 样品与均质器无接触, 如无样品泄露则不需进行系统清洗
- ▶ 均质柔和启动、样品无污染、无损伤、不升温、不需要灭菌处理, 不需洗刷器皿
- ▶ 拍击箱体: 不锈钢



型号: XCO7-II

- ▶ Large LCD screen display.
- ▶ Can store 3 sets of working procedure (multi segment programming: can set up arbitrary parameters).
- ▶ The homogenization time can be adjusted.
- ▶ Homogeneous speed can be adjusted or set to a fixed speed.
- ▶ The flapper can adjust the distance before and after.
- ▶ Disposable sterile bag can ensure hygiene and safety.
- ▶ The full open type door, easy to clean (with automatic stop, anti-pinch function).
- ▶ Removable window, Can adjust the flapping plate and toughened glass security door, transparent glass window for observation.
- ▶ The sample and homogenizer without contact; If there is no sample leakage, it is not necessary to carry out system cleaning.
- ▶ Homogeneous soft start, no pollution, no damage to sample, not warming up, don't need to be sterilized, do not need to wash the utensils.
- ▶ Slap box: Stainless steel.



技术参数/Technical data

有效容积	Effective volume	3~400ml
定时范围	Timer Range	0~99.9min
可变速度	Variable Speed	3to12 times extrusion per second
拍击时间	Slap Spacing	0~5mm Adjustable
整机功率	The whole power	300W
电源要求	Power Requirement	200V/50Hz
无菌均质袋	Sterile homogeneous bag	300*170mm
整机重量	Weight	18kg
外形尺寸	Outline Dimensions	420*245*340

GRINDING MACHINE 研磨仪

宁凯高通量组织研磨仪是一种特殊的、快速的、高效率的、多试管的一致系统。它能将任何来源(包括土壤、植物和动物的组织/器官、细菌、酵母、真菌、孢子、古生物标本等)的原始DNA、RNA和蛋白质进行提取和纯化。本款机器又名:多样品组织研磨机,快速组织研磨机,多样品组织匀浆机,快速样品匀浆系统。

Ning kai High throughput tissue grinder is a special, fast, high efficiency, multi-tube consistent system. It can extract and purify original DNA, RNA and proteins from any source (including soil, plant and animal tissues/organs, bacteria, yeast, fungi, spores, paleontological specimens, etc) . This machine is also known as: multi-sample tissue grinder, fast tissue grinder, multi-sample tissue homogenizer, rapid sample homogenization system.



研磨仪系列产品展示:

Display of grinder series products:



NK-LD48S



NK-24S



NK-96S



NK-48LS



NK-48S

技术特点/Technical features

研磨仪系统与目前已有的其它样品制备方法相比，具有通用性广、高效灵活的优点。该系统避免了研磨、匀浆、超声波处理等传统方法的费力、耗时、低效等诸多缺点，可以高效、快速、稳定地裂解并纯化各种类型样品的核酸与蛋白。

Compared with other existing sample preparation methods, the grinder system has the advantages of wide versatility, high efficiency, and flexibility. This system avoids many drawbacks of traditional methods such as grinding, homogenization, and ultrasonic treatment, such as being laborious, time-consuming, and inefficient. It can efficiently, quickly, and stably cleave and purify nucleic acids and proteins from various types of samples.



可研磨样品/Grindable sample



操作流程/Operation process

轻松完成样品处理，只要四步
Easy sample processing in just four steps



1. Place the sample and grinding beads into a centrifuge tube or in the grinding tank
2. Centrifuge tube or grinding tank Insert into adapter
3. Install the adapter in the grinder, Set working parameters and start the equipment.
4. After the equipment is running, take out the sample and centrifuge it for 1 min, then add reagents to extract and purify nucleic acids or proteins.

宁凯研磨机采用了特殊的垂直上下一体震动模式，通过研磨珠（氧化锆、钢珠、玻璃珠、陶瓷珠）的高频往复振动、撞击、剪切，使研磨的样品具有更加充分、更均匀、样品之间没有交叉污染。

Ningkai grinding machine adopts a special vertical up and down integrated vibration mode, which utilizes high-frequency reciprocating vibration, impact, and shear of grinding beads (zirconia, steel beads, glass beads, ceramic beads) to make the ground samples more thorough, uniform, and free of cross contamination between samples.

操作数量多，效果好 Multiple operations with good effect

高效快速，可以在1分钟内完成2x24、2x48、4x96个样品的研磨。省时省力，批间，批内差异小。抽提的蛋白比活更高，核酸片断更长。

Efficient and fast, capable of grinding 2x24, 2x48, and 4x96 samples within 1 minute. Time and effort saving, with small inter batch and intra batch differences. The extracted protein has higher activity and longer nucleic acid fragments.

无交叉污染 No cross contamination

样品管在破碎过程中处于全封闭状态，可采用一次性离心管和珠子。样品完整保留在管内，避免样品间的交叉污染以及外界污染。

The sample tube is in a fully enclosed state during the crushing process, and disposable centrifuge tubes and beads can be used. The sample is kept intact inside the tube to avoid cross contamination between samples and external contamination.

操作简便 Easy to operate

- 1、内置程序控制器，可对研磨时间、转子的振动频率等参数进行设置；
- 2、人性化操作界面。

1、Built in program controller, which can set parameters such as grinding time and rotor vibration frequency;
2、Humanized operation interface.

稳定性好 Good stability

- 1、采用垂直振荡方式，研磨更充分，稳定性更好；
- 2、噪音小于55dB，不会对其它实验或仪器产生干扰。

1、Adopting vertical oscillation mode for more thorough grinding and better stability;
2、The noise is less than 55dB and will not interfere with other experiments or instruments.

方便低温操作 Easy low-temperature operation

当需要低温研磨环境，可将放有样本的适配器浸入液氮中冷却1-2分钟，取出后移至主机快速固定即可开始研磨，不需要进行再次冷冻处理，节省液氮。

When a low-temperature grinding environment is required, the adapter containing the sample can be immersed in liquid ammonia and cooled for 1-2 minutes. After removal, it can be moved to the main machine for quick fixation and grinding can begin without the need for further freezing treatment, saving liquid nitrogen.

重复性好 Good repeatability

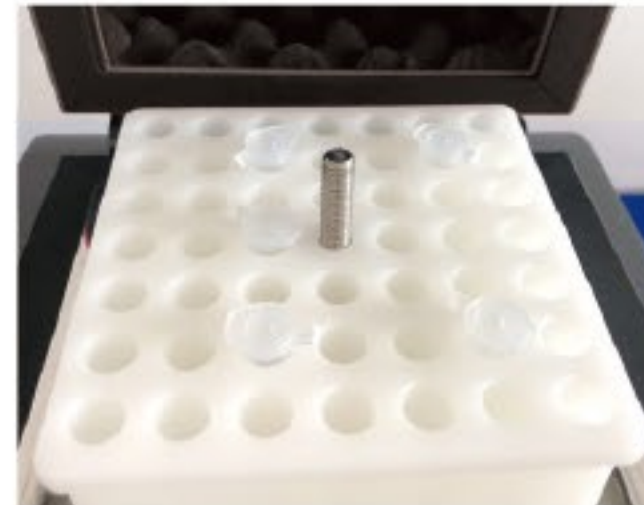
同一组织样本设定相同程序，获得相同的研磨效果。工作时间短，样本温度不会上升。

The same tissue sample is set up with the same program to obtain the same grinding effect. The working time is short and the sample temperature will not rise.

基本配置/Basic configuration



研磨仪主机 x 1台
Grinding machine x 1



2ml 48孔适配器 x 1
2ml 24孔适配器 x 1
2ml 48 hole adapter x 1
2ml 24 hole adapter x 1



3mm 316不锈钢研磨球 x1000粒
6mm 316不锈钢研磨球 x500粒
3mm 316 stainless steel grinding ball x1000
6mm 316 stainless steel grinding ball x500



2ml 研磨管 x 200支
2ml grinding tube x 200 pieces

可选配件/Optional Accessories

冷冻研磨管

2ml~100ml冷冻研磨管可达-196°C

Frozen grinding tube

2ml~100ml frozen grinding tube can reach -196 °C



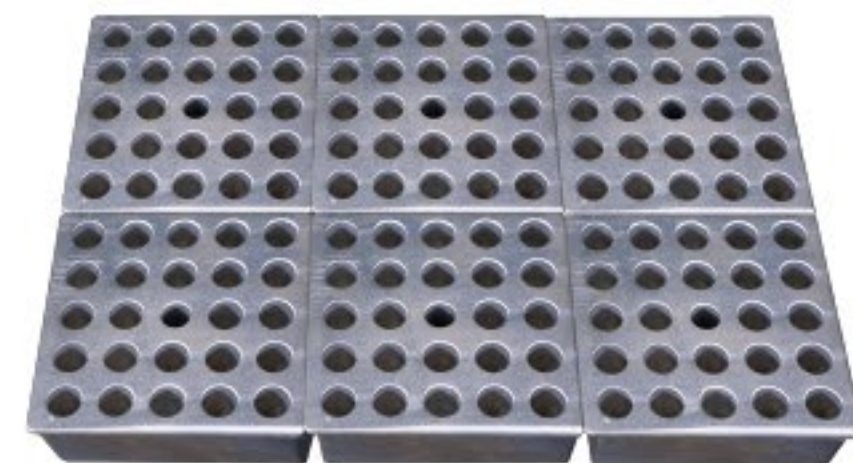
适配器/Adapter

2.0mlx24、2.0mlx48、5.0mlx12、5.0mlx24
15mlx8、25mlx4、50mlx2

冷冻适配器 (可达-196°C)

Freezing adapter (up to -196 °C)

2.0mlx24、5.0mlx12、15mlx8、25mlx2、50mlx2
可定制任意规格/Customize any size



备注/Remarks

常规的适配器都可以放入冰箱内以便于在工作的时候给样品一个冷环境。可另配带制冷的适配器，可以液氮中浸泡三十分钟以上。针对工作环境的噪音排放值，取决于样品的类型和研磨仪的设置。表中参数为空载状态。

通常用于DNA和RNA分离的少量样品可在一次性离心管中制备，可采用聚四氟乙烯制成的适配器，容纳5或10个一次性样品试管，进行细胞破碎，在多样品组织研磨机中细胞组织在较短的时间内得到快速而有效的破碎，因而无需额外的低温制冷。

Conventional adapters can be placed in the refrigerator to provide a cold environment for the sample during operation. It can be equipped with a cooling adapter and can be soaked in liquid nitrogen for more than 30 minutes. The noise emission value for the working environment depends on the type of sample and the setting of the grinder. The parameters in the table are in an unloaded state.

A small amount of samples commonly used for DNA and RNA separation can be prepared in disposable centrifuge tubes. Adapters made of polytetrafluoroethylene can be used to accommodate 5 or 10 disposable sample tubes for cell fragmentation. In a multi sample tissue grinder, the cell tissue can be quickly and effectively fragmented in a short amount of time, without the need for additional low-temperature refrigeration.

型号/Model: NK-24S



产品介绍
Product Introduction

全金属机身，提高整机的稳定性和安全性。工作仓安全锁，保证样品安全和实验室安全。无交叉污染，样品管在破碎过程中全封闭状态。

All metal body, improve the stability and safety of the whole machine; Safety lock to ensure sample safety and laboratory safety; No cross contamination, the sample tube is completely closed during the crushing process.

应用领域
Application area

组织均质、研磨、细胞破碎、匀浆、材料分散、制备、样品混匀、振荡；15秒内能同时处理24个样品，可适配12位和24位的液氮冷冻适配器。

Organization homogenization, grinding, cell fragmentation, homogenization, material dispersion, preparation, sample mixing, oscillation; Process 24 samples simultaneously within 15 seconds, Adaptable to 12 and 24 bit liquid nitrogen refrigeration adapters

样本容量 Sample capacity	标配24孔两毫升PE适配器，可选配2ml*12、5ml*12、10ml*4、25ml*2研磨罐 Standard 24 hole 2ml PE adapter, optional with 2ml*12、5ml*12、10ml*4、25ml*2 grinding cans
显示方式 Display method	触摸屏显示 Touch screen display
多段编程 Multi segment programming	可选配 Optional
进料尺寸 Feed size	根据适配器调节 Adjust according to adapter
出料粒度 Discharge particle size	~5µm
研磨平台数 Number of grinding platforms	> 2
研磨频率 Grinding frequency	0~70 Hz
研磨时间 Grinding time	0s~99min, 自由设定/Free setting
研磨球直径 Grinding ball diameter	0.1~30mm
研磨球材料 Grinding ball material	合金钢、铬钢、氧化锆、碳化钨、石英砂等 Alloy steel, chromium steel, zirconia, tungsten carbide, quartz sand, etc
加速 Accelerate	在2秒内可达到较大速度 Reaching a high speed within 2 seconds
噪音等级 Noise level	< 55db
研磨方式 Grinding method	垂直珠式研磨法；干磨、湿磨、低温研磨均可 Vertical bead grinding method; Dry grinding, wet grinding, and low-temperature grinding
外形尺寸 Dimensions	260mm*380mm*500mm
重量 Weight	25KG

带自动中心定位的紧固装置，工作时安全锁，全程保护。研磨套件材料，硬质刚，聚四氟乙烯(特氟龙)氧化锆
Equipped with an automatic center positioning fastening device, with a safety lock during operation and full protection. Grinding kit material, hard steel, polytetrafluoroethylene (PTFE) zirconia.

型号/Model: NK-48S



产品介绍
Product Introduction

全金属机身，提高整机的稳定性和安全性。工作仓安全锁，保证样品安全和实验室安全。无交叉污染，样品管在破碎过程中全封闭状态。

All metal body, improve the stability and safety of the whole machine; Safety lock to ensure sample safety and laboratory safety; No cross contamination, the sample tube is completely closed during the crushing process.

应用领域
Application area

组织均质、研磨、细胞破碎、匀浆、材料分散、制备、样品混匀、振荡；15秒内能同时处理48个样品，可适配12位、24位、48位液氮冷冻适配器。

Organization homogenization, grinding, cell fragmentation, homogenization, material dispersion, preparation, sample mixing, oscillation; Process 48 samples simultaneously within 15 seconds; Adapt to 12 bit, 24 bit, and 48 bit liquid nitrogen refrigeration adapters.

样本容量
Sample capacity: 标配48孔两毫升PE适配器，可选配2ml*24、2ml*48、5ml*12、10ml*4、25ml*4、50ml*2研磨罐
Standard 48 hole 2ml PE adapter, optional with 2ml * 24, 2ml * 48, 5ml * 12, 10ml * 4, 25ml * 4, 50ml * 2 grinding cans

显示方式 Display method 触摸屏显示 Touch screen display

多段编程 Multi segment programming 可选配 Optional

进料尺寸 Feed size 根据适配器调节 Adjust according to adapter

出料粒度 Discharge particle size ~5μm

研磨平台数 Number of grinding platforms > 2

研磨频率 Grinding frequency 0~70 Hz

研磨时间 Grinding time 0s~99min, 自由设定/Free setting

研磨球直径 Grinding ball diameter 0.1~30mm

研磨球材料 Grinding ball material 合金钢、铬钢、氧化锆、碳化钨、石英砂等
Alloy steel, chromium steel, zirconia, tungsten carbide, quartz sand, etc

加速 Accelerate 在2秒内可达到较大速度
Reaching a high speed within 2 seconds

噪音等级 Noise level < 55db

研磨方式 Grinding method 垂直珠式研磨法；干磨、湿磨、低温研磨均可
Vertical bead grinding method; Dry grinding, wet grinding, and low-temperature grinding

外形尺寸 Dimensions 260mm*380mm*500mm

重量 Weight 28KG

带自动中心定位的紧固装置，工作时安全锁，全程保护。研磨套件材料，硬质刚，聚四氟乙烯(特氟龙)氧化锆
Equipped with an automatic center positioning fastening device, with a safety lock during operation and full protection. Grinding kit material, hard steel, polytetrafluoroethylene (PTFE) zirconia.

型号/Model: NK-96S



产品介绍
Product Introduction

全金属机身，提高整机的稳定性和安全性。工作仓安全锁，保证样品安全和实验室安全。无交叉污染，样品管在破碎过程中全封闭状态。

All metal body, improve the stability and safety of the whole machine; Safety lock to ensure sample safety and laboratory safety; No cross contamination, the sample tube is completely closed during the crushing process.

应用领域
Application area

组织均质、研磨、细胞破碎、匀浆、材料分散、制备、样品混匀、振荡；15秒内能同时处理48个样品，包括可适配12位、24位、48位和96位液氮冷冻适配器。

Organization homogenization, grinding, cell fragmentation, homogenization, material dispersion, preparation, sample mixing, oscillation; Process 48 samples simultaneously within 15 seconds, Adapt to 12 position, 24 position, 48 position, and 96 position liquid ammonia freezing adapters.

样本容量
Sample capacity: 标配96孔两毫升PE适配器，可选配2mlx24、2mlx48、2mlx96、5mlx12、10mlx4、25mlx4、50mlx2、100mx2研磨罐 / Standard 96 hole 2ml PE adapter, optional with 2mlx24, 2mlx48, 2mlx96, 5mlx12, 10mlx4, 25mlx4, 50mlx2, 100mx2 grinding cans

显示方式 Display method 触摸屏显示 Touch screen display

多段编程 Multi segment programming 可选配 Optional

进料尺寸 Feed size 根据适配器调节 Adjust according to adapter

出料粒度 Discharge particle size ~5μm

研磨平台数 Number of grinding platforms > 2

研磨频率 Grinding frequency 0~70 Hz

研磨时间 Grinding time 0s~99min, 自由设定/Free setting

研磨球直径 Grinding ball diameter 0.1~30mm

研磨球材料 Grinding ball material 合金钢、铬钢、氧化锆、碳化钨、石英砂等
Alloy steel, chromium steel, zirconia, tungsten carbide, quartz sand, etc

加速 Accelerate 在2秒内可达到较大速度
Reaching a high speed within 2 seconds

噪音等级 Noise level < 55db

研磨方式 Grinding method 垂直珠式研磨法；干磨、湿磨、低温研磨均可
Vertical bead grinding method; Dry grinding, wet grinding, and low-temperature grinding

外形尺寸 Dimensions 340mm*380mm*600mm

重量 Weight 35KG

带自动中心定位的紧固装置，工作时安全锁，全程保护。研磨套件材料，硬质刚，聚四氟乙烯(特氟龙)氧化锆
Equipped with an automatic center positioning fastening device, with a safety lock during operation and full protection. Grinding kit material, hard steel, polytetrafluoroethylene (PTFE) zirconia.

型号/Model: NK-48LS



应用领域
Application area

产品介绍
Product Introduction

全金属机身，提高整机的稳定性和安全性。工作仓安全锁，保证样品安全和实验室安全。无交叉污染，样品管在破碎过程中全封闭状态。

All metal body, improve the stability and safety of the whole machine; Safety lock to ensure sample safety and laboratory safety; No cross contamination, the sample tube is completely closed during the crushing process.

应用领域
Application area

组织均质、研磨、细胞破碎、匀浆、材料分散、制备、样品混匀、振荡；15秒内能同时处理48个样品，可适配12位、24位液氮冷冻适配器。

Organization homogenization, grinding, cell fragmentation, homogenization, material dispersion, preparation, sample mixing, oscillation; Process 48 samples simultaneously within 15 seconds; Adapt to 12 bit and 24bit liquid nitrogen refrigeration adapters.

样本容量
Sample capacity:

标配48孔两毫升PE适配器，48孔合金适配器，可选配2ml*48、5ml*12、10ml*4、15ml*4、25ml*4、50ml*2研磨罐 / Standard 48 hole 2ml PE adapter, optional with 2ml*48、5ml*12、10ml*4、15ml*4、25ml*4、50ml*2 grinding cans.

显示方式 Display method

触摸屏显示 Touch screen display

多段编程
Multi segment programming

可选配 Optional

进料尺寸 Feed size

根据适配器调节 Adjust according to adapter

出料粒度 Discharge particle size

~5μm

研磨平台数
Number of grinding platforms

> 2

研磨频率 Grinding frequency

0~70 Hz

研磨时间 Grinding time

0s~99min, 自由设定/Free setting

研磨球直径 Grinding ball diameter

0.1~30mm

研磨球材料 Grinding ball material

合金钢、铬钢、氧化锆、碳化钨、石英砂等
Alloy steel, chromium steel, zirconia, tungsten carbide, quartz sand, etc

加速 Accelerate

在2秒内可达到较大速度
Reaching a high speed within 2 seconds

噪音等级 Noise level

< 55db

研磨方式 Grinding method

垂直珠式研磨法;干磨、湿磨、低温研磨均可
Vertical bead grinding method; Dry grinding, wet grinding, and low-temperature grinding

冷冻范围 Freezing range

零下 0℃ ~ -50℃ 自由调节 Free adjustment from -0 °C to -50 °C

尺寸/重量 Dimensions/Weight

700mm*400mm*500mm / 50KG

带自动中心定位的紧固装置，工作时安全锁，全程保护。研磨套件材料，硬质刚，聚四氟乙烯(特氟龙)氧化锆
Equipped with an automatic center positioning fastening device, with a safety lock during operation and full protection. Grinding kit material, hard steel, polytetrafluoroethylene (PTFE) zirconia.

型号/Model: NK-LD48S



样本容量
Sample capacity

产品介绍
Product Introduction

全金属机身，机仓填充隔音棉，静音无干扰。工作仓电磁锁定，保证样品安全和实验室安全。无交叉污染，样品管在破碎过程中全封闭状态。底部配有万向轮，方便移动。

All metal body, filled with soundproof cotton in the compartment, silent without interference. Electromagnetic locking of the work chamber ensures sample safety and laboratory safety. No cross contamination, the sample tube is fully enclosed during the crushing process. The bottom is equipped with universal wheels for easy movement.

应用领域
Application area

组织均质、研磨、细胞破碎、匀浆、材料分散、制备、样品混匀、振荡；15秒内能同时处理48个样品，包括可适配12位和24位液氮冷冻适配器。

Organization homogenization, grinding, cell fragmentation, homogenization, material dispersion, preparation, sample mixing, oscillation; Process 48 samples simultaneously within 15 seconds; Adapt to 12 bit and 24bit liquid nitrogen refrigeration adapters.

显示方式 Display method

触摸屏显示 Touch screen display

选配模式
Optional mode

可储存≥20组实验数据，根据不同的实验样本，设置有动物心脏、脾、肺、肾、骨骼、毛发模式
Store ≥ 20 sets of experimental data, with animal heart, spleen, lungs, kidneys, bones, and hair patterns set according to different experimental samples experimental samples .

多段编程
Multi segment programming

可以预设多组研磨配方，根据设置的实验参数，可在几个设置好的参数间不断循环，减少人为因数的干扰
Multiple sets of grinding formulas are preset, and based on experimental parameters, they can be continuously cycled between several set parameters to reduce human interference.

开盖方式 Opening method

电动开关工作仓机盖 Electric switch working compartment cover

研磨平台数
Number of grinding platforms

> 2

进料尺寸 Feed size

根据适配器调节 Adjust according to adapter

出料粒度 Discharge particle size

~5μm

制冷范围 Refrigeration range

20℃~-50℃

制冷时间 Refrigeration time

20℃降至-50℃，约40分钟 20 °C to -50 °C, about 40 minutes

研磨时间 Grinding time

0s~99min, 自由设定/Free setting

研磨频率 Grinding frequency

0~70 Hz

研磨球直径 Grinding ball diameter

0.1~30mm

研磨行程 Grinding stroke

34mm (垂直)

研磨球材料 Grinding ball material

合金钢、铬钢、氧化锆、碳化钨、石英砂等
Alloy steel, chromium steel, zirconia, tungsten carbide, quartz sand, etc

加速 Accelerate

在2秒内可达到较大速度 Reaching a high speed within 2 seconds

噪音等级 Noise level

< 55db

研磨方式 Grinding method

垂直珠式研磨法;干磨、湿磨、低温研磨均可
Vertical bead grinding method; Dry grinding, wet grinding, and low-temperature grinding

尺寸/重量 Dimensions/Weight

450mm*450mm*720mm / 50KG

带自动中心定位的紧固装置，工作时安全锁，全程保护。研磨套件材料，硬质刚，聚四氟乙烯(特氟龙)氧化锆
Equipped with an automatic center positioning fastening device, with a safety lock during operation and full protection. Grinding kit material, hard steel, polytetrafluoroethylene (PTFE) zirconia.

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