

## 实验室多功能提取浓缩回收机组

### LAB MULTI-FUNCTION EXTRACTING TANK

#### 设备简介:

雅程系列实验型多功能提取浓缩回收机组是我司在借鉴国内外同类产品的基础上研究开发的新产品，适用于中草药、天然产物、保健品、生物制药、化妆品、食品的多功能提取，常压常温超声波提取、超声萃取、动态提取，提取物真空减压浓缩（水和有机溶剂）和挥发性芳香油的回收，浓缩比重1.1-1.38。此设备可动态连续超声波提取，真空减压超低温浓缩。设备组成：提取罐，回流冷凝器，回流冷却器，芳香油收集器，提取罐过滤器，列管式加热器，蒸发器，回收冷凝器，回收冷却器，收集罐，不锈钢机架及连接管阀件、仪表等，非常适用于高校、研究所和企事业单位实验室研发部门及制药厂多品种、小批量生产使用。

Pilotech experimental multi-function extraction thickening recycling set is a new developed product based on reference to domestic and foreign similar products, suitable for extraction of Chinese herbal medicine, natural product, health care product, biological pharmacy, cosmetics and food, together with supersonic extraction, ultrasonic extraction and dynamic extraction under normal pressure and temperature, extract vacuum relief concentration as well as volatile aromatic oil recovery, with a concentration proportion of 1.1-1.38. This equipment can achieve dynamic and continuous ultrasonic extraction and vacuum relief concentration at ultra-low temperature. The equipment comprises of extraction tank, reflux condenser, reflux cooler, aromatic oil collector, extraction tank filter, tubular heater, evaporator, recovery condenser, recovery cooler, gathering tank, stainless steel frame, connection pipe valve and instrument, perfectly suitable for varied and small batch production and application in research and development department of universities, research institutes, enterprises and pharmaceutical factories.

设备功能：静态水提或醇提，常压热回流水提或醇提，渗漉提取，常压外循环浓缩，常压浓缩，真空减压浓缩，有机溶剂回收（常压或减压）（可选配在线超声波提取功能）

Equipment function. Static water extraction or alcohol extraction, hot reflux water extraction or alcohol extraction under normal pressure, external reflux concentration under normal pressure, concentration under normal pressure, vacuum relief concentration, organic solvent recovery (under normal pressure or negative pressure) (online ultrasonic extraction function available)

## 设备特点 Features

1) 占地面积小, 仅需1~3M<sup>2</sup>, 接上水和电就可使用, 最小投料量0.5KG, 最大投料量5KG。

Small area coverage of 2-3m<sup>2</sup>. Works directly with water and power with a minimum inventory of 0.3KG and a maximum inventory of 5KG.

2) 提取系统配有回流冷凝器、回流冷却器、油水分离器, 可有效的回收物料中挥发性芳香油。

Extraction system is equipped with a reflux condenser, reflux cooler, oil-water separator that can recover aromatic oil in materials in an effective manner.

3) 夹层加热(夹层无压力), 加热均匀。

Circular heating of conduction oil (no pressure between lamination) and uniform heating.

4) 机组自带蒸发浓缩器, 浓缩效率更高, 浓缩比重可达1.1~1.38。

Units are equipped with outer circular evaporating concentrator with a more concentrating efficiency, concentration ratio reaching 1.1~1.38.

5) 可适应水提、醇提是天然植物药提取方面的中试设备, 适用于科研机构、大专院校、医院、药厂、食品行业对中草药液、茶汁和果汁等物质的提取、浓缩以及有机溶剂的回收。

Can be applied to water, alcohol and serve as pilot plant testing equipment for natural herb extraction. Suitable for extraction and concentration of herbal liquid and tea and fruit juice in research institutions, universities, hospitals, pharmaceutical factory and food industry.

6) 它集多功能提取、与真空浓缩为一体, 可用于热回流循环提取, 渗漉提取, 常温浓缩, 真空低温浓缩, 挥发性芳香油回收等, 简化操作程序, 节省了实验室空间;

It combines multi-functional extraction and vacuum concentration as a whole and simplify operations with functions of heat reflux circular extraction, concentration, conventional extraction, concentration, water sedimentation (alcohol sedimentation).

7) 机组与物料接触部分全部采用不锈钢制造, 能在负压, 常压状态下工作。Unit parts contacting materials are made of stainless steel that works in negative pressure and ordinary pressure.

8) 低温浓缩, 保证产品质量, 动态循环蒸发, 提高了换热效率, 有效解决换热效率随浓度增高而降低问题, 节约能耗, 提高工效

Low temperature concentration ensures product quality. Dynamic circular evaporation increases heat transfer efficiency, provides an effective solution to decreased heat transfer efficiency with increased concentration, saves energy and improves efficiency.

9) 药渣通过浸提篮提升出料, 极大的改善工作环境和提升工作效率

Dregs leach through the digestion basket to greatly improve the working environment and efficiency.

10) 选配在线超声波发生器多功能提取罐特点

Features of online ultrasonic generator multi-function extraction tank





10.1设备使用效率高：我司研制的最新超小型超声动态提取浓缩机组，在原动态热回流提取机组的基础上优化产品结构将聚能式超声波发生器和小型的真空减压浓缩设备整合在此设备中，使超声动态萃取、提取、过滤、减压浓缩、精油冷凝等生产工艺一步完成，大大节省了原材料和工作时间，工作效率比一般多功能提取设备提高了60%~80%。

High efficiency. On the basis of the original dynamic hot reflux extraction set, the newly developed superminiature ultrasonic dynamic extraction and condensing set optimizes its structure by combining energy-gathering ultrasonic generator with miniature vacuum relief condenser, which can complete ultrasonic dynamic extraction, abstraction, filter, relief concentration and essential oil condensation in one step, greatly saving raw materials and work time, with an improved work efficiency of 60% - 80% than general multi-function extraction machine.

10.2原材料转化率高：利用超声波独具的物理作用、空化作用能促使植物细胞组织破壁或变形，溶质的质点间的振动、加速度冲击、声压剪切等效应力加强，使物料形成局部点的极端高温高压，促使中药有效成分析出，提取率比传统工艺显著提高达45%。

High raw material conversion rate. Unique physical function and cavitation of ultrasonic wave can promote plant cell tissue wall breaking or deformation and strengthen solute particle vibration, acceleration shock, sound pressure shear effect so that materials form local extreme high temperature and high pressure to facilitate traditional Chinese medicine effective component precipitation, with significantly improved extraction efficiency 45% higher than traditional processes.

10.3超声波提取是常温提取，有效减少热敏性成分的丧失，同时超声波提取浓缩机组采用钛合金聚能式超声波发生器，使大体积的中药材可充分接触到超声波探头，加速原料药内有效成分的均匀析出。

Ultrasonic extraction carries out under normal temperature, which effectively reduces heat-sensitive ingredient loss. In addition, ultrasonic extraction and condensing set adopts titanium alloy energy-gathering generator where big-size Chinese herbal medicine can fully contact with the ultrasonic probe to accelerate homogeneous precipitation of effective ingredients.

10.4设备结构精巧，充分发挥超声波聚能式发生器特点，超声波直接作用物料，利用超声波强化中药提取的机械作用，空化作用，局部高振动、高冲击、高声压剪切作用，使提取时间较传统方法大大缩短4/5以上，药材原材料处理量大；

The equipment has a compact structure and gives a full play to the ultrasonic energy-gathering generator. Ultrasonic waves directly act on materials, strengthens herbal extraction mechanical action, cavitation function, local high frequency vibration, high impact and high sound pressure shear effect to shorten the extraction time by 4/5, together with big volume of raw material processing.

10.5使用时超声波提取设备跟真空减压压缩设备可独立运作，也可联动运行。

Ultrasonic extraction equipment and vacuum relief condenser can work independently and jointly.

10.6原材料转化率高：由于在浓缩过程中蒸发室在较低温度下工作，使物料内热敏性有效成分最大程度的保留。这样可更好的保证物料浓缩后的药用效果。

High raw material conversion rate. During concentration, evaporation chamber works at a lower temperature to retain heat-sensitive effective ingredients to the greatest degree. In this way, medicinal effect after concentration can be better retained.

10.7 适应性广：提取中药材不受成分极性、分子量大小的限制，适用于绝大多数中药材和各类成分的提取；此设备为全封闭内循环结构，配有油水分离器和冷凝器、冷却器，可对贵重溶媒多次重复使用。

Wide adaptability. Chinese herbal medicine extraction is not restricted by ingredient polarity or molecular weight size, making it suitable for extraction of ingredients of most Chinese herbal medicine. This equipment is fully enclosed inner loop structure, equipped with oil-water separator, condenser and cooler, for repeated use on valuable solvents.

设备可选频率范围：15KHz、20KHz、28 KHz、30 KHz、35 KHz、40 KHz、50 KHz、60 KHz、80 KHz

Applicable frequency range: 15 KHz, 20 KHz, 28 KHz, 30 KHz, 35 KHz, 40 KHz, 50 KHz, 60 KHz, 80 KHz





## YC-010 多功能提取罐技术参数

### 10L Multi-functional extraction machine technical parameters

1、提取罐容积：10L（有效），不锈钢三层结构，外层聚氨酯发泡保温，中间层加热，内层抛光，带药材浸提篮；

Extraction tank volume is 10L, three layers stainless steel structure, outer heat preservation, middle layer heating, inner is polished.

2、系统配置：不锈钢提取罐（10L）、列管式冷凝器（冷凝面积0.5m<sup>2</sup>）、油水分离器（可回收物料中挥发性芳香油）、管道视镜、不锈钢水环式真空泵（功率1.5KW）、欧姆龙温控仪，真空表，不锈钢提取篮，电加热器（总功率3KW），卫生级安全阀，电气控制柜，连接管道管件阀门等；（设备不需配置饮料泵等物料泵，减少对物料的二次污染）

System configuration: stainless steel extraction tank(10L), tube type condenser (Condensation area is 0.5m<sup>2</sup>), oil-water separator(which can recover volatile aromatic oil from materials), sight glass, water-ring vacuum pump, Omron temperature controller, vacuum meter, electric heater, sanitary safety valves, electrical control cabinet, connecting pipe valves etc.

3、提取罐内置不锈钢水环式真空泵，真空泵噪音低，提取或浓缩时，只需要在启动时工作几分钟即可，不需要在整个提取或浓缩过程中一直工作，减低真空泵对实验室环境的影响。蒸发室真空度：0~-0.08MPa；

Evaporation chamber vacuum degree: 0~-0.08MPa

4、提取温度可以控制设定，PID恒温控制，温控精度：±2℃；

Extraction temperature can be controlled, PID constant temperature control, and set with accuracy of ±2℃

5、冷却水耗量：0.5t/h，冷却水压力：< 0.3 MPa；

Cooling water consumption: 0.5t/h. Cooling water pressure: <0.3 MPa

6、集多功能提取与真空浓缩为一体，可进行热回流循环提取，浓缩，常规提取，浓缩等操作，简化了操作程序；

It combines multi-functional extraction and vacuum concentration as a whole and simplify operations with functions of heat reflux circular extraction, concentration, conventional extraction, concentration, water sedimentation, etc. Simplified operating procedures

7、机组与物料接触部分全部采用不锈钢制造，能在负压，常压，正压状态下工作；

The unit is made of SUS304 stainless steel material that works in negative pressure and ordinary pressure conditions

8、药渣通过网状浸提篮提升出料；

Dregs Leach through the digestion basket



## YC-020 多功能提取罐技术参数

### 20L Multi-functional extraction machine technical parameters



1、提取罐容积:  $0.025\text{m}^3$ ，原料投料量:  $0.3\sim 5\text{kg}/\text{批}$ ，最小投料量 $0.3\text{KG}$ ，不锈钢三层结构，外层聚氨酯发泡保温，中间层加热，内层抛光。

Extraction tank volume is  $20\text{L}$ . Material feeding  $0.3\sim 5\text{kg}/\text{batch}$ . Three layers stainless steel structure, outer heat preservation, middle layer heating, inner is polished.

2、系统配置: 不锈钢提取罐 (20L)、列管式冷凝器 (冷凝面积 $0.5\text{M}^2$ )、油水分离器 (可回收物料中挥发性芳香油)、不锈钢浓缩罐，不锈钢管道过滤器，管道视镜、不锈钢水环式真空泵 (功率 $1.5\text{KW}$ )、欧姆龙温控仪，真空表，不锈钢药材浸提篮，电加热器 (总功率 $9\text{KW}$ )，卫生级安全阀，电气控制柜，连接管道管件阀门等。(设备不需配置饮料泵等物料泵，减少对物料的二次污染)

System configuration: stainless steel extraction tank (20L), tube type condenser (Condensation area is  $0.5\text{m}^2$ ), oil-water separator (which can recover volatile aromatic oil from materials), sight glass, water-ring vacuum pump, Omron temperature controller, vacuum meter, electric heater, sanitary safety valves, electrical control cabinet, connecting pipe valves etc.

3、机组自带蒸发浓缩器，蒸发量 (清水):  $4\sim 6\text{ Kg}/\text{h}$ ，低温浓缩，动态循环蒸发，有效解决换热效率随浓度增高而降低问题，节约能耗，提高工效，浓缩效率更高，浓缩比重可达 $1.1\sim 1.3$  (中药浸膏)。

Units are equipped with concentration tank with a more concentrating efficiency, concentration ratio reaching  $1.1\sim 1.38$ .

4、提取罐内置不锈钢水环式真空泵，真空泵噪音低，提取或浓缩时，只需要在启动时工作几分钟即可，不需要在整个提取或浓缩过程中一直工作，减低真空泵对实验室环境的影响。蒸发室真空度:  $0\sim -0.08\text{MPa}$

Evaporation chamber vacuum degree:  $0\sim -0.08\text{MPa}$

5、提取温度可以控制设定，温控精度:  $\pm 2^\circ\text{C}$ 。

Extraction temperature can be controlled, PID constant temperature control, and set with accuracy of  $\pm 2^\circ\text{C}$

6、加热功率:  $380\text{V}/9\text{KW}$

Heating power  $380\text{V}/9\text{KW}$

7、冷却水耗量:  $1\text{t}/\text{h}$ ，冷却水压力:  $< 0.3\text{ MPa}$

Cooling water consumption:  $1\text{t}/\text{h}$ . Cooling water pressure:  $< 0.3\text{ MPa}$

8、夹层循环加热 (夹层无压力)，加热均匀，可适应水提与醇提是天然植物药提取方面的中试设备，适用于对中草药液、茶剂和果汁等物质的提取而浓缩。

Can be applied to water extraction and serve as pilot plant testing equipment for natural herb extraction. Suitable for extraction and concentration of herbal liquid and tea and fruit juice in research institutions, universities, hospitals, pharmaceutical factory and food industry.

9、集多功能提取与真空浓缩为一体，可进行热回流循环提取、渗漉提取，浓缩，常规提取，浓缩等操作，简化了操作程序。

It combines multi-functional extraction and vacuum concentration as a whole and simplify operations with functions of heat reflux circular extraction, concentration, conventional extraction, concentration, water sedimentation, etc. Simplified operating procedures

10、机组与物料接触部分全部采用不锈钢制造，能在负压，常压状态下工作。

The unit is made of SUS304 stainless steel material that works in negative pressure and ordinary pressure conditions

11、药渣通过网状浸提篮提升出料

Dregs leach through the digestion basket

12、主体材料，SUS304，外形尺寸:  $1500\text{X}800\text{X}1900\text{mm}$

SUS 304 stainless steel material, dimension  $1500*800*1900\text{mm}$



## YC-050 多功能提取罐技术参数

### 50L Multi-functional extraction machine technical parameters

1、提取罐容积:  $0.05\text{m}^3$ , 原料投料量:  $2\sim 10\text{Kg}/\text{批}$ , 最小投料量 $2\text{KG}$ , 不锈钢三层结构, 外层聚氨酯发泡保温, 中间层加热, 内层抛光, 带药材浸提篮。

Extraction tank volume is  $50\text{L}$ . Material feeding  $2\sim 10\text{kg}/\text{batch}$ . Three Layers stainless steel structure, outer heat preservation, middle layer heating, inner is polished.

2、系统配置: 不锈钢提取罐(50L)、列管式冷凝器(冷凝面积 $2\text{M}^2$ )、油水分离器(可回收物料中挥发性芳香油)、不锈钢浓缩罐, 不锈钢管道过滤器, 管道视镜、不锈钢水环式真空泵(功率 $1.5\text{KW}$ )、欧姆龙温控仪, 真空表, 不锈钢药材浸提篮, 电加热器(总功率 $12\text{KW}$ ), 卫生级安全阀, 电气控制柜, 连接管道管件阀门等。(设备不需配置饮料泵等物料泵, 减少对物料的二次污染)

System configuration: stainless steel extraction tank( $50\text{L}$ ), tube type condenser(Condensation area is  $2\text{m}^2$ ), oil-water separator(which can recover volatile aromatic oil from materials), sight glass, water-ring vacuum pump, Omron temperature controller, vacuum meter, electric heater, sanitary safety valves, electrical control cabinet, connecting pipe valves etc.

3、机组自带蒸发浓缩器, 蒸发量(清水):  $4\sim 10\text{kg}/\text{h}$ , 低温浓缩, 动态循环蒸发, 有效解决换热效率随浓度增高而降低问题, 节约能耗, 提高功效, 浓缩效率更高, 浓缩比重可达 $1.1\sim 1.3$ (中药浸膏)。

Units are equipped with concentration tank with a more concentrating efficiency, concentration ratio reaching  $1.1\sim 1.38$ .

4、提取罐内置不锈钢水环式真空泵, 真空泵噪音低, 提取或浓缩时, 只需要在启动时工作几分钟即可, 不需要在整个提取或浓缩过程中一直工作, 减低真空泵对实验室环境的影响。蒸发室真空度 $0\sim -0.08\text{MPa}$

Evaporation chamber vacuum degree:  $0\sim -0.08\text{MPa}$

5、提取温度可以控制设定, 温控精度:  $\pm 2^\circ\text{C}$ 。

Extraction temperature can be controlled, PID constant temperature control, and set with accuracy of  $\pm 2^\circ\text{C}$

6、加热功率:  $380\text{V}/18\text{Kw}$

Heating power  $380\text{V}/18\text{KW}$

7、冷却水耗量:  $2\text{t}/\text{h}$ , 冷却水压力:  $<0.3\text{MPa}$

Cooling water consumption:  $2\text{t}/\text{h}$ . Cooling water pressure:  $<0.3\text{MPa}$

8、夹层循环加热(夹层无压力), 加热均匀, 可适应水提与醇提, 是天然植物药提取方面的中试设备, 适用于对中草药液、茶汁和果汁等物质的提取和浓缩。

Can be applied to water extraction and serve as pilot plant testing equipment for natural herb extraction. Suitable for extraction and concentration of herbal liquid and tea and fruit juice in research institutions, universities, hospitals, pharmaceutical factory and food industry.

9、集多功能提取与真空浓缩为一体, 可进行热回流循环提取, 渗漉提取, 浓缩, 常规提取, 浓缩等操作, 简化了操作程序。

It combines multi-functional extraction and vacuum concentration as a whole and simplify operations with functions of heat reflux circular extraction, concentration, conventional extraction, concentration, water sedimentation, etc. Simplified operating procedures

10、机组与物料接触部分全部采用不锈钢制造, 能在负压, 常压状态下工作。

The unit is made of SUS304 stainless steel material that works in negative pressure and ordinary pressure conditions

11、药渣通过网状浸提篮提升出料

Dregs leach through the digestion basket

12、主体材料, SUS304, 外形尺寸:  $1800\times 900\times 1900\text{mm}$

SUS 304 stainless steel material, dimension  $1800\times 900\times 1900\text{mm}$



## YC-100 多功能提取罐技术参数

### 100L Multi-functional extraction machine technical parameters

1、提取罐容积：0.1m<sup>3</sup>，原料投料量：5~20Kg/批，最小投料量5KG，不锈钢三层结构，外层聚氨酯发泡保温，中间层加热，内层抛光，带药材浸提篮。

Extraction tank volume is 100L. Material feeding 5~20kg/batch. Three layers stainless steel structure, outer heat preservation, middle layer heating, inner is polished.

2、系统配置：不锈钢提取罐（100L）、列管式冷凝器（冷凝面积3M<sup>2</sup>）、油水分离器（可回收物料中挥发性芳香油）、不锈钢浓缩罐，不锈钢管道过滤器，管道视镜、不锈钢水环式真空泵（功率1.5KW）、欧姆龙温控仪，真空表，不锈钢药材浸提篮，电加热器（总功率18KW），卫生级安全阀，电气控制柜，连接管道管件阀门等。（设备不需配置饮料泵等物料泵，减少对物料的二次污染）

System configuration: stainless steel extraction tank(100L), tube type condenser(Condensation area is 3m<sup>2</sup>), oil-water separator(which can recover volatile aromatic oil from materials), sight glass, water-ring vacuum pump, Omron temperature controller, vacuum meter, electric heater, sanitary safety valves, electrical control cabinet, connecting pipe valves etc.

3、机组自带蒸发浓缩器，蒸发量（清水）：8~20 Kg/h,低温浓缩，动态循环蒸发，有效解决换热效率随浓度增高而降低问题，节约能耗，提高工效，浓缩效率更高，浓缩比重可达1.1~1.3（中药浸膏）。

Units are equipped with concentration tank with a more concentrating efficiency, concentration ratio reaching 1.1~1.38.

4、提取罐内置不锈钢水环式真空泵，真空泵噪音低，提取或浓缩时，只需要在启动时工作几分钟即可，不需要在整个提取或浓缩过程中一直工作，减低真空泵对实验室环境的影响。蒸发室真空度：0~-0.08MPa

Evaporation chamber vacuum degree: 0~-0.08MPa

5、提取温度可以控制设定，温控精度：±2℃。

5.Extraction temperature can be controlled, PID constant temperature control, and set with accuracy of ±2℃

6、加热功率：380V/27Kw

Heating power 380V/27KW

7、冷却水耗量：3t/h, 冷却水压力：< 0.3 MPa

Cooling water consumption: 3t/h. Cooling water pressure: <0.3 MPa

8、夹层循环加热（夹层无压力），加热均匀，可适应水提和醇提是天然植物药提取方面的中试设备,适用于对中草药液、茶汁和果汁等物质的提取与浓缩。

Can be applied to water extraction and serve as pilot plant testing equipment for natural herb extraction. Suitable for extraction and concentration of herbal liquid and tea and fruit juice in research institutions, universities, hospitals, pharmaceutical factory and food industry.

9、集多功能提取与真空浓缩为一体，可进行热回流循环提取，渗漉提取，浓缩，常规提取，浓缩等操作，简化了操作程序。

It combines multi-functional extraction and vacuum concentration as a whole and simplify operations with functions of heat reflux circular extraction, concentration, conventional extraction, concentration, water sedimentation, etc. Simplified operating procedures

10、机组与物料接触部分全部采用不锈钢制造，能在负压，常压状态下工作。

The unit is made of SUS304 stainless steel material that works in negative pressure and ordinary pressure conditions  
药渣通过网状浸提篮提升出料

Dregs leach through the digestion basket

12、主体材料，SUS304，外形尺寸：2000X900X2100mm

SUS 304 stainless steel material, dimension 2000\*900\*2100mm

