



西安特普讯仪器设备有限公司
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公司简介 COMPANY PROFILE

西安特普讯仪器设备有限公司经过多年的发展，已成为一家从事萃取、蒸馏、过滤、干燥和预处理系列设备的研发、生产、销售和服務的世界领先制造商。

总部位于有5000多年历史的古都西安市；包括多个生产基地，拥有专业研发团队25+人；蒸馏生产基地位于西安，占地面积6000 m²；过滤、干燥等生产基地位于中国南方城市。

自2004年以来，TOPTION的设备已在美国、加拿大、俄罗斯、波兰、西班牙、意大利、瑞典、瑞士、德国、法国、哥伦比亚、韩国、泰国等多个国家使用并受到好评。我们是您在蒸馏和干燥行业的可靠合作伙伴，我们灵活、专业，真正关心您的潜在利益，可支持定制。我们希望您的业务被客户认可和铭记。

TOPTION已通过ISO9001和CE认证。我们与客户密切合作，提供一款性能非凡的设备，选择TOPTION，让您的利益最大化。

TOPTION将是您的最优选择。

TOPTION INSTRUMENT has spent 18+ years becoming a world leading manufacturer engaged in the research, development, production, sale and service of Extraction, distillation, filtration, drying & Pretreatment series equipment.

The headquartered is in Xi'an City, the ancient capital with 5000+ history; includes several production bases, own professional research and development team 25+ persons; the distillation production base is located in Xi'an, covering an area of 6000 m²; the drying and other production bases are located in southern China cities.

Since 2004 TOPTION'S equipment has been used and praised in many countries including United States, Canada, Russia, Poland, Spain, Italy, Sweden, Switzerland, Germany, France, Colombia, Korea, Thailand. We are your dependable partner in distillation and drying industry, we are flexible, intelligent, and truly care about your benefits potential. We want your business to be remembered and welcomed by your customers.

TOPTION has passed ISO9001 & CE certification. We work closely with our clients to deliver a successful and extraordinary equipment, choose TOPTION to maximize your benefits.

TOPTION will be your TOP OPTION.



目录 CONTENTS

| | |
|---|----|
| 公司简介 Company Profile | 01 |
| 厂区剪影 Factory Silhouette | 03 |
| 短程蒸馏技术 Short Path Molecular Distillation Equipment | 05 |
| 短程蒸馏设备 Molecular Distillation Equipment | 13 |
| 实验室规模的蒸馏设备 Lab Scale Distillation Equipment | 17 |
| 薄膜蒸发 Thin film evaporation | 28 |
| 升、降膜蒸发装置 Rising and falling film evaporation device | 30 |
| 精馏装置 Simple rectification unit | 33 |
| 搅拌反应装置 Stirring Reactor | 35 |
| 结晶过滤设备 Crystallization filter equipment | 38 |
| 高真空干燥箱 High vacuum drying oven | 42 |
| 吸附柱 Column | 43 |
| OEM 定制 OEM Customized | 44 |



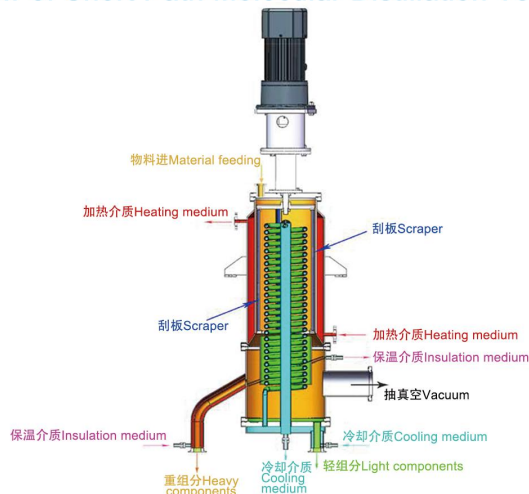
Export Business
Quality Assurance
R & D Capacity
Production Flexibility
Company

厂区剪影 Factory Silhouette



短程蒸馏技术 Short Path Molecular Distillation Equipment

短程分子蒸馏技术概况 Overview of Short Path Molecular Distillation Technology



短程（分子）蒸馏分离过程如图示，物料从蒸发器的顶部加入，经转子上的料液分布器被连续均匀地分布在加热面，刮膜器将产品刮成一层极薄、呈湍流状的液膜。蒸发器内部是高真空状态，物料在加热面上吸热而从加热面上逸出，轻分子的自由程大于加热面到冷凝面的距离，与冷凝器碰撞并被捕获形成新的液流，沿冷凝器管流下，通过底部轻质出料管排出；重分子的自由程小于加热面到冷凝面的距离，保持在加热面的液流层内，通过加热区下端的圆形通道收集，再从侧面的重质出料管排出。

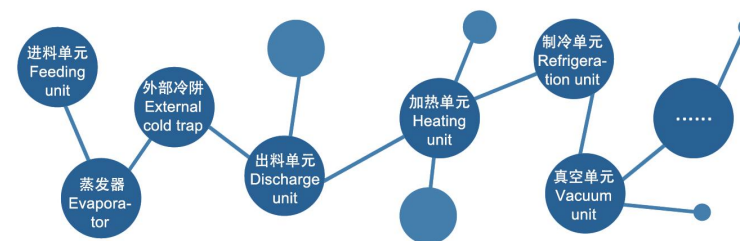
The short-path molecular distillation separation process is shown in the figure. The material is feeding from the top of the evaporator and is continuously and evenly distributed on the heating surface through the liquid distribution on the rotor device, the scraper scrapes the product into an extremely thin & turbulent liquid film. The inside of the evaporator is in a high vacuum state. The material absorbs heat on the heating surface and escapes from the heating surface. The free path of light molecules is greater than the distance from the heating surface to the condensing surface, colliding with the condenser and being captured to form a new liquid flow. Flow down the condenser tube and discharge through the bottom light discharge tube. The free path of heavy molecules is less than the distance from the heating surface to the condensation surface, and they are kept in the liquid flow layer of the heating surface, collected through the circular channel at the lower end of the heating zone, and then discharged from the heavy material discharge pipe on the side.

一套完整的短程（分子）蒸馏装置包括进料单元、蒸发器、外部冷阱、出料单元、加热单元、制冷单元、真空单元等部件。各部件选型与分离物料的性质、工艺要求、企业现有资源条件合理适配才能保证整套设备满足使用要求。

A complete set of short path molecular distillation unit includes feeding unit, evaporator, external cold trap, discharge unit, heating unit, refrigeration unit, vacuum unit, etc. The selection of each component must be reasonably adapted to the nature of the separated materials, process requirements, and existing resource conditions of the enterprise to ensure that the entire set of equipment meets the requirements for use.

多级薄膜、短程蒸发器串联在一起，经过连续多级蒸馏，可实现多组份复杂混合物的分离。选型前需进行多次实验论证，不能简单拼装。西安特普讯团队，有十几年的选型及使用经验，精心为客户推荐每一套装置方案，协助用户把每一套装置的使用工艺优化到最佳。

Multi-stage thin film and short path evaporators are connected in series, and after continuous multi stage distillation, multi component complex mixtures can be realized separation. Before the model selection, several experiments are needed to demonstrate, and it cannot be simply assembled. TOPTION team has 16+ years of selection and experience in use, carefully recommend each set of device solutions for customers, and assist users to optimize the use process of each set of devices to optimal.



短程（分子）蒸馏的优势 Advantages of Short Path Molecular Distillation

和传统的减压蒸馏、精馏相比较，短程（分子）蒸馏有以下特点
Compared with traditional vacuum distillation and rectification, short path molecular distillation has the following characteristics

物料受热时间短 Material heating time is short

旋转刮板推动料液在加热表面上呈螺旋状连续地向下移动并脱离加热面，被分离物料从加热面逸出，很快被冷凝器冷却收集，这种方法把物料与加热面接触时间降到最小。消除了热分解、聚合或变质现象。

The rotating scraper pushes the liquid material to move downward continuously in a spiral shape on the heating surface and separate from the heating surface. The separated material escapes from the heating surface and is quickly collected by the condenser. This method minimizes the contact time between the material and the heating surface. Thermal decomposition, aggregation or deterioration is eliminated.

蒸发温度低 Low evaporation temperature

料液分布器把物料以薄膜状均匀的分布在加热面上，减少了物料静液面产生的压力差。加热面和冷凝面的距离短，轻分子从加热面溢出后迅速被冷凝，减少了气体转移产生的压力降，比较容易获得较低的蒸发压力；另外只要轻分子从蒸发面溢出后的运动自由程大于蒸发面与冷凝面的距离就可实现分离，不用加热到被分离物质的沸点，因而蒸馏温度要比常规蒸馏低得多。

The material liquid distributor distributes the material evenly on the heating surface in the form of a film, which reduces the pressure difference generated by the static liquid surface of the material.

The distance between the heating surface and the condensing surface is short, and the light molecules are quickly condensed after overflowing from the heating surface, which reduces the pressure drop caused by gas transfer and makes it easier to obtain a lower evaporation pressure. In addition, as long as the free path of movement of light molecules overflowing from the evaporation surface is greater than the distance between the evaporation surface and the condensation surface, the separation can be achieved without heating to the boiling point of the substance to be separated, so the distillation temperature is much lower than that of conventional distillation.

自清洁加热面 Self-cleaning heating surface

旋转刮板在加热表面滑动，对液膜不断地搅动和更新，防止了物料在加热面的鼓泡、刮壁结垢等，能成功地应用于常规蒸馏容易鼓泡、在加热表面结垢物料的浓缩和分离。

The rotating scraper slides on the heating surface, continuously stirring and updating the liquid film, preventing the material from bubbling and scraping the wall on the heating surface. It can be successfully applied to the concentration and separation of materials that are easy to bubble in conventional distillation and fouled on the heating surface.

蒸发效率高、适应性强、操作方便 High evaporation efficiency, strong adaptability and convenient operation

多级串联在一起，经过多级蒸馏，可实现多组份复杂混合物的分离。西安特普讯团队经过多年研究改进，成功解决了有压差条件下可重复性物料转移输送的难题，使连续化生产变得更加简洁稳定，从第一级进料到每一级不同馏份的输出均在连续化进行；蒸馏参数调整后对馏份的影响可以随时取样跟进；从小试到中试再到大型工业化设备同比放大适应性很强。

Multiple stages are connected in series, and after multi-stage distillation, the separation of multi-component complex mixtures can be realized. After years of research and improvement, TOPTION team has successfully solved the problem of repeatable material transfer and transportation under the condition of differential pressure, making continuous production more concise and stable, from the first-stage feed to each stage of different fractions the outputs are carried out continuously. The influence of distillation parameters on fractions can be sampled and followed up at any time after adjustment of distillation parameters, it has strong adaptability to scale-up from small-scale to pilot-scale to large-scale industrial equipment.

由于短程蒸馏的以上特征，可以消除热分离过程中产生的热分解、聚合或变质，所以分子蒸馏是热分离目的产物最优的蒸馏方法，特别适合于高分子量、高沸点、高粘度的物质及热稳定性极差的有机混合物。现已广泛应用于多种天然成分的提取，可摆脱化学处理方法的束缚，真正保持了产品纯天然的特性，被视为天然品质的保护者和回归者。

Due to the above characteristics of short path molecular distillation, thermal decomposition, polymerization or deterioration during thermal separation can be eliminated, so molecular distillation is the mildest distillation method for thermal separation target products, especially suitable for high molecular weight, high boiling point, high viscosity substances and organic mixtures with extremely poor thermal stability. It has been widely used in the extraction of a variety of natural ingredients, which can get rid of the shackles of chemical treatment methods, truly maintain the natural characteristics of the product, and be regarded as the protector and returner of natural quality.



● 应用领域 Application field

- ★ 热敏性化合物的热分离
Thermal separation of heat-sensitive compounds
- ★ 有机合成物质的提纯
Purification of organic synthetic substances
- ★ 生物提取液中有效成分的分离
Separation of active ingredients in biological extract
- ★ 工业废料的回收利用
Recycling of industrial waste
- ★ 食品工业中毒害物质的去除
Removal of toxic substances in food industry
- ★ 有机化合物的脱色、除异味
Decolorization and deodorization of organic compounds
- ★ 化合物中残留溶剂的高精度去除
High-precision removal of residual solvents in compounds

● 我们的特点 Our advantages

1、有自主研发及生产能力，根据不同工况设计各种不同形式的蒸馏系统，以满足不同的工艺要求及用户审美。

With independent research and development and production capacity, various forms of distillation systems are designed according to different working conditions to meet different process requirements and user aesthetics.

a. 不同的蒸发器形式 Different Evaporator Forms

可视化蒸发器、洁净型蒸发器、专用蒸发器、上出口蒸发器（见附图）

Visual evaporator, Clean evaporator, Special evaporator, Upper outlet evaporator
(Pls see attached picture)



b. 不同的出料方式（见附图）

Different discharge methods (Pls see attached picture)



c. 不同的外置冷阱方式（见附图）

Different external cold trap methods (Pls see attached picture)

单液氮冷阱、防堵塞冷阱、双用冷阱、双冷阱（见附图）

Single liquid nitrogen cold trap, Anti-clogging cold trap, Dual-purpose cold trap, Double cold trap
(Pls see attached photo)



d. 多样化的真空配置（见附图）

Diversified vacuum configurations (Pls see attached photo)



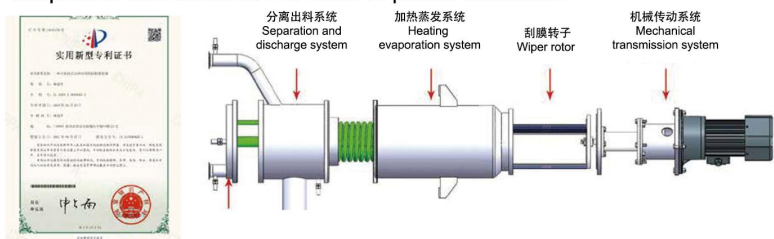
2、连续进出料物料输送方式设计，关键技术取得国家专利证书
The design of continuous feeding and discharging material conveying method, the key technology has obtained the national patent certificate.



3、物料管路全夹套保温，延伸了设备使用领域，对于熔点高、低温下粘度较大类产品也能通过伴热达到较好使用效果。
The material pipeline is fully jacketed for heat preservation, which extends the application field of the equipment. For products with high melting point and high viscosity at low temperature, it can also achieve better use effect through heat tracing.



4、可拆卸清洗式洁净蒸发器设计，适用于小批量、多品种公司应用，大大避免了更换产品时造成的交差污染。本形式蒸发器设计取得国家专利证书。
The design of detachable cleaning type clean evaporator is suitable for small batch and multi-variety materials applications, which greatly avoids cross pollution caused by product replacement. The design of this type of evaporator has obtained the national patent certificate.



5、公司拥有实验室，可为用户样品及产品做验证试验，让客户买得放心，用得舒心。
We have a laboratory, which can do verification tests for user samples and products, so that customers can buy with confidence and use them comfortably.



6、部件选材精益求精，关键部件均选用国内外知名品牌，高端品质的部件铸就高端质量的整体设备。在与全球顶尖公司合作过程中，向其学习借鉴优秀的管理经验，完善自身内部管理体系，逐步将特普讯打造成全球知名品牌。
The material selection of components keeps rigorous, key components are selected from well-known brands at China and abroad, and high-end quality components create high-end quality overall equipment. In the process of cooperating with the world's top companies, learn from their excellent management experience, improve our own internal management system, and gradually build TOPTION into a world-renowned brand.



只提供高品质的产品，拒绝平庸及粗制滥造的模仿。
Provide only high quality equipments, reject mediocre and shoddy imitations.

短程蒸馏设备 Molecular Distillation Equipment

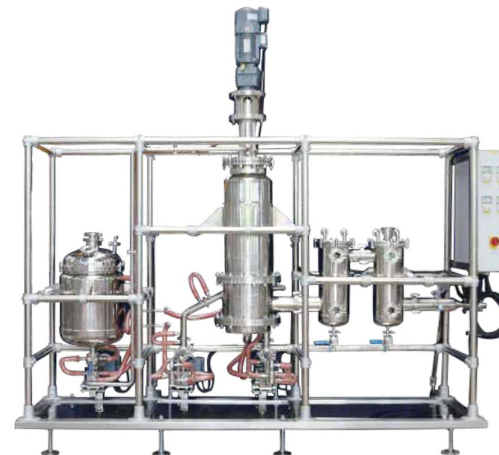
• UL 安全认证款 UL safety certified model

短程蒸馏装置主机于2020年通过UL61010-1检测认证，满足了美国、加拿大市场安全准入标准，认证产品得到北美市场客户的认可与青睐。

The main unit of the short path distillation unit passed the UL61010-1 testing and certification in 2020, meeting the safety access standards of the US and Canadian markets, and the certified equipments have been recognized and favored by customers in the North American market.



• UL 认证款单级主机 UL Listed Single-Stage Main Unit



UL认证规格型号 UL certified model technical parameters

| 部件名称 Part Name | MDS-10 | MDS-20 | MDS-30 | MDS-50 |
|------------------------------------|--|--|--|--|
| 处理量 Throughput | 3~10L/H | 6~20L/H | 10~30L/H | 10~50L/H |
| 原料罐 Raw material tank | 10L 夹套管储罐 10L Jacketed tube tank | 15L 夹套管储罐 15L Jacketed tube tank | 30L 夹套管储罐 30L Jacketed tube tank | 50L 夹套管储罐 50L Jacketed tube tank |
| 进料系统 Feeding system | 高精度齿轮泵 High precision gear pump | | | |
| 蒸发器 Evaporator | 蒸发面积 0.1m ² Evaporation area 0.1m ² | 蒸发面积 0.2m ² Evaporation area 0.2m ² | 蒸发面积 0.3m ² Evaporation area 0.3m ² | 蒸发面积 0.5m ² Evaporation area 0.5m ² |
| 蒸发器内径 Evaporator inner diameter | 125mm | 180mm | 210mm | 260mm |
| 工艺冷阱 Process cold trap | 制冷机冷却 Chiller cooling | | | |
| 重质出料 Heavy component discharge | 高精度齿轮泵 High precision gear pump | | | |
| 轻质出料 Light component discharge | 高精度齿轮泵 High precision gear pump | | | |
| 物料管路 Material pipeline | 夹层保温 Interlayer insulation | | | |
| 电器 Electrical appliances | 整机通过 UL61010-1 认证 The whole machine has passed UL61010-1 certification | | | |

● UL 认证款双级主机 UL Listed Dual-Stage Main Unit



● UL 认证款三级主机 UL Listed Three-Stage Main Unit



UL 认证款双级规格型号 UL Listed Dual-Stage Models Technical Parameters

| 部件名称Part Name | MDS-II-10 | MDS-II-20 | MDS-II-30 | MDS-II-50 |
|------------------------------------|--|---|---|---|
| 处理量Throughput | 2~5L/H | 3~10L/H | 5~15L/H | 5~26L/H |
| 原料罐 Raw material tank | 10L 夹套管储罐 10L Jacketed tube tank | 15L 夹套管储罐 15L Jacketed tube tank | 30L 夹套管储罐 30L Jacketed tube tank | 50L 夹套管储罐 50L Jacketed tube tank |
| 进出料系统 & discharging system | 高精度齿轮泵 High precision gear pump | | | |
| 蒸发面积Evaporator | 蒸发器内径0.1m ² ×2 Evaporation area 0.1m ² ×2 | 蒸发器内径0.2m ² ×2 Evaporation area 0.2m ² ×2 | 蒸发器内径0.3m ² ×2 Evaporation area 0.3m ² ×2 | 蒸发器内径0.5m ² ×2 Evaporation area 0.5m ² ×2 |
| 蒸发器内径 Evaporator inner diameter | 125mm | 180mm | 210mm | 260mm |
| 物料管路 Material pipeline | 夹层保温 Interlayer insulation | | | |
| 电器 Electrical appliances | 整机通过 UL61010-1 认证 The whole machine has passed UL61010-1 certification | | | |

UL 认证三级规格型号 UL Listed Three-Stage Main Unit Technical Parameters

| 部件名称Part Name | MDS-III-10 | MDS-III-20 | MDS-III-30 | MDS-III-50 |
|------------------------------------|--|---|---|---|
| 处理量Throughput | 2~5L/H | 3~10L/H | 5~15L/H | 5~26L/H |
| 原料罐 Raw material tank | 10L 夹套管储罐 10L Jacketed tube tank | 15L 夹套管储罐 15L Jacketed tube tank | 30L 夹套管储罐 30L Jacketed tube tank | 50L 夹套管储罐 50L Jacketed tube tank |
| 进出料系统 & discharging system | 高精度齿轮泵 High precision gear pump | | | |
| 蒸发面积Evaporator | 蒸发器内径0.1m ² ×3 Evaporation area 0.1m ² ×3 | 蒸发器内径0.2m ² ×3 Evaporation area 0.2m ² ×3 | 蒸发器内径0.3m ² ×3 Evaporation area 0.3m ² ×3 | 蒸发器内径0.5m ² ×3 Evaporation area 0.5m ² ×3 |
| 蒸发器内径 Evaporator inner diameter | 125mm | 180mm | 210mm | 260mm |
| 物料管路 Material pipeline | 夹层保温 Interlayer insulation | | | |
| 电器 Electrical appliances | 整机通过 UL61010-1 认证 The whole machine has passed UL61010-1 certification | | | |

MDS系列实验用装置 MDS Series Experimental Equipment

● 设备特点 Features

■ 汽相上出口设计，内置冷凝器不接入冷却液时，可以当薄膜蒸发器使用，一套系统可以完成两种功能，适合实验室研发使用，节约设备投入。

The upper outlet of the vapor phase is designed. When the built-in condenser is not connected to the cooling liquid, it can be used as a thin film evaporator. One system can complete two functions, which is suitable for laboratory research and development and saves equipment investment.

■ 主体设备和辅助设备分体设计，根据用户产品参数和现有仪器状况选配必要的加热、制冷单元，真空单元，选型灵活、又减少了不必要的投资。

The main equipment and auxiliary equipment are designed separately, and the necessary heating, refrigeration units and vacuum units are selected according to the user's product parameters and existing instrument conditions. The selection is flexible and unnecessary investment is reduced.

■ 物料管道全保温，高熔点、高粘度物料均可使用。

The material pipeline is fully insulated, and materials with high melting point and high viscosity can be used.

■ 齿轮泵连续进料，稳定可重复调节。

Gear pump feeds continuously, stable and repeatable adjustment.

■ 齿轮泵连续出料和接收罐批次出料可快速互换，适合多种工况。

Gear pump continuous discharge and receiving tank batch discharge can be quickly interchanged, suitable for a variety of working conditions.



MDS系列分子蒸馏部件规格 MDS Series Molecular Distillation Part Specifications

| 部件名称 Part Name | MDS125-10B | MDS125-10C | MDS180-18B | MDS180-18C | MDS210-28B | MDS210-28C |
|-------------------------------------|--|------------------------------------|--|------------------------------------|--|------------------------------------|
| 原料罐 Raw material tank | 15L 夹套罐 15L Jacketed tank | | 20L 夹套罐 20L Jacketed tank | | 30L 夹套罐 30L Jacketed tank | |
| 进料系统 Feeding system | 高精度齿轮泵 High precision gear pump | | | | | |
| | 流量 1L~3L/H 1L~3L/H Flow | | 流量 3L~10L/H 3L~10L/H Flow | | 流量 5L~20L/H 5L~20L/H Flow | |
| 蒸发器 Evaporator | 蒸发面积 0.1m ² Evaporation area 0.1m ² | | 蒸发面积 0.18m ² Evaporation area 0.18m ² | | 蒸发面积 0.28m ² Evaporation area 0.28m ² | |
| | 蒸发器内径125mm Evaporator inner diameter 125mm | | 蒸发器内径180mm Evaporator inner diameter 180mm | | 蒸发器内径210mm Evaporator inner diameter 210mm | |
| | 活动刮板成膜 Movable scraper film formation | | | | | |
| 重质出料 Heavy component discharge | 磁体耦合联轴器 Magnet Coupling | | | | | |
| | 29#磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump | 29#磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump | 29#磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump |
| | 玻璃接收瓶 Glass receiving bottle | 流量 1L~3L/H 1L~3L/H Flow | 玻璃接收瓶 Glass receiving bottle | 流量 3L~10L/H 3L~10L/H Flow | 玻璃接收瓶 Glass receiving bottle | 流量 5L~20L/H 5L~20L/H Flow |
| 轻质出料 Light component discharge | 29#磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump | 29#磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump | 29#磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump |
| | 玻璃接收瓶 Glass receiving bottle | 流量 1L~3L/H 1L~3L/H Flow | 玻璃接收瓶 Glass receiving bottle | 流量 3L~10L/H 3L~10L/H Flow | 玻璃接收瓶 Glass receiving bottle | 流量 5L~20L/H 5L~20L/H Flow |
| 工艺冷阱 Process cold traps | 盘管，制冷机冷却 Coils, chiller cooling | | | | | |
| 保护冷凝 Condensation protection | 液氮或干冰冷却 Liquid nitrogen or dry ice cooling | | | | | |
| 物料管路 Material pipeline | 夹层保温 Jacketed layer insulation | | | | | |
| 支架及组装 Bracket and Assembly | 304 不锈钢管 304 Stainless Steel Tube | | | | | |
| 电器控制柜 Electrical control cabinet | 手动操作柜 Manual operation cabinet | | | | | |
| 主机外形尺寸 Mainframe Dimensions | 2450*1000* 2200 | 2450*1000* 2050 | 2650*1000* 2200 | 2650*1000* 2350 | 2650*1000* 2650 | 2650*1000* 2450 |

MDS系列实验装置 MDS Series Experimental Equipment

● 设备特点 Features

- 一体化集成设计，结构紧凑、占用空间小、美观漂亮，适合研发实验室、洁净车间使用。
Integrated design, compact structure, small footprint, beautiful appearance, suitable for R&D laboratories and clean workshops.
- 使用高品质的加热制冷设备，外形小，运转无噪音，无油烟污染。
Using high-quality heating and cooling equipment, small size, no noise, no oil fume pollution.
- 物料管道全保温，高熔点、高粘度物料均可使用。
The material pipeline is fully insulated, and materials with high melting point and high viscosity can be used.
- 齿轮泵连续进料，稳定可重复调节。
Gear pump feeds continuously, stable and repeatable adjustment.
- 齿轮泵连续出料和接收罐批次出料可快速互换，适合多种工况。
Gear pump continuous discharge and receiving tank batch discharge can be quickly interchanged, suitable for a variety of working conditions.



使用进口或特普讯自制高品质加热制冷设备，控制精度高，运行安全可靠。
Using imported or self-made high quality heating and cooling equipment, with high control precision and safe and reliable operation.



MDS系列设备部件规格 MDS Series Equipment Component Specifications

| 部件名称 Part Name | MDS-10B | MDS-10C | MDS-15B | MDS-15C | MDS-30B | MDS-30C |
|---|--|------------------------------------|--|------------------------------------|--|------------------------------------|
| 原料罐 Raw material tank | 10L 夹套罐 10L Jacketed tank | | 10L 夹套罐 10L Jacketed tank | | 20L 夹套罐 20L Jacketed tank | |
| 进料系统 Feeding system | 高精度齿轮泵 High precision gear pump | | | | | |
| | 流量 1L~3L/H 1L~3L/H Flow | | 流量 2L~5L/H 2L~5L/H Flow | | 流量 3L~10L/H 3L~10L/H Flow | |
| 蒸发器 Evaporator | 蒸发面积 0.1m ² Evaporation area 0.1m ² | | 蒸发面积 0.15m ² Evaporation area 0.15m ² | | 蒸发面积 0.3m ² Evaporation area 0.3m ² | |
| 工艺冷阱 Process cold trap | 磁体耦合联轴器 Magnet Coupling | | | | | |
| 保护冷阱 Protect cold trap | 盘管，制冷机冷却 Coil, chiller cooling | | | | | |
| 重质出料 Heavy component discharge | 液氮冷阱 Liquid nitrogen cold trap | | | | | |
| 轻质出料 Light component discharge | 磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump | 磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump | 磨口适配器 29#Grinding adapter | 高精度齿轮泵 High precision gear pump |
| | 玻璃瓶 Glass bottle | 流量 1L~3L/H 1L~3L/H Flow | 玻璃瓶 Glass bottle | 流量 2L~5L/H 2L~5L/H Flow | 玻璃瓶 Glass bottle | 流量 3L~10L/H 3L~10L/H Flow |
| 物料管路 Material pipeline | 夹层保温 Interlayer insulation | | | | | |
| 支架及组装 Bracket and Assembly | 304 不锈钢管 304 Stainless Steel Tube | | | | | |
| 主机外形尺寸 Mainframe Dimensions | 2800*900* 2100 | 2800*900* 2100 | 2800*900* 2300 | 2800*900* 2300 | 3000*1000* 2600 | 3000*1000* 2600 |
| 真空 Vacuum | 双级旋片泵组 Two-stage rotary vane pump set | | | | | |
| 主蒸发器加热 Main evaporator heating | 控温 50°C~300°C Temperature control 50°C~300°C | | | | | |
| 流经管路保温 Flow through pipeline insulation | 控温 50°C~300°C Temperature control 50°C~300°C | | | | | |
| 内冷恒温冷却 Internal cooling constant temperature cooling | 控温 50°C~300°C Temperature control 50°C~300°C | | | | | |
| 制冷 Refrigeration | 液氮、制冷机 Liquid nitrogen, refrigerator chiller | | | | | |

MDS系列实验室用装置

MDS Series Laboratory Short Path Distillation Equipment

● 设备特点 Features

■ 玻璃不锈钢结合蒸发器，兼顾玻璃可观察内部状态和不锈钢安全性好的双重特征。

The glass & stainless steel are combined with the evaporator, taking into account the dual characteristics of glass that can observe the internal state and the safety of stainless steel.

■ 试验初期使用玻璃蒸发器加热筒体，通过初期试验观察了解内部反应情况后，可更换不锈钢加热筒体。

At the beginning of the test, the glass evaporator was used to heat the cylinder, and the stainless steel heating cylinder could be replaced after the internal reaction was observed through the initial test.

■ 适合无分子蒸馏使用经验的用户或科研教学使用。

It is suitable for users without molecular distillation experience or for scientific research and teaching.

■ 物料管道全保温，高熔点、高粘度物料均可使用。

The material pipeline is fully insulated, and materials with high melting point and high viscosity can be used.

■ 齿轮泵连续进料，稳定可重复调节。

Gear pump feeds continuously, stable and repeatable adjustment.

■ 齿轮泵连续出料和接收罐批次出料方式快速互换，适合多种工况。

The continuous discharge of the gear pump and the batch discharge of the receiving tank can be quickly interchanged, which is suitable for a variety of working conditions.



MDS系列不锈钢玻璃结合分子蒸馏 MDS Series Stainless steel & glass combined type molecular distillation

| 部件名称 Part Name | MDS-150C | MDS-150B |
|-----------------------------------|--|--|
| 原料罐 Raw material tank | 15L 夹套罐 15L Jacketed tank | 15L 夹套罐 15L Jacketed tank |
| 进料组件 Feeding components | 齿轮泵 Gear pump | 齿轮泵 Gear pump |
| | 流量 2L~5L/H 2L~5L/H Flow | 流量 2L~5L/H 2L~5L/H Flow |
| 蒸发器 Evaporator | 变频调速 Frequency control | 变频调速 Frequency control |
| | 蒸发面积 0.22m ² Evaporation area 0.22m ² | 蒸发面积 0.22m ² Evaporation area 0.22m ² |
| | 材质: 316L+玻璃 Material: 316L+ glass | 材质: 316L+玻璃 Material: 316L+ glass |
| | 密封形式: 磁力 Sealing form: Magnetic sealing | 密封形式: 磁力 Sealing form: Magnetic sealing |
| 重质出料 Heavy component discharge | 齿轮泵 Gear pump | 29#磨口适配器 29# Grinding adapter |
| | 流量 2L~5L/H 2L~5L/H Flow | 玻璃瓶 Glass bottle |
| 轻质出料 Light component discharge | 齿轮泵 Gear pump | 29#磨口适配器 29# Grinding adapter |
| | 流量 2L~5L/H 2L~5L/H Flow | 玻璃瓶 Glass bottle |
| 冷阱 Cold trap | 双用冷阱; 制冷机 / 液氮双用 Dual-purpose cold trap; Refrigerator chiller / liquid nitrogen dual-purpose | |
| 物料管路 Material pipeline | 夹层保温 Jacketed layer insulation | |
| 支架及组装 Bracket and Assembly | 304 不锈钢管 304 Stainless Steel Tube | |
| 主机尺寸(mm) Host size(mm) | 2250×900×2500 | |

MDS系列中试及生产装置

MDS Series pilot and production distillation equipment



一套完整的短程蒸馏装置包括：短程蒸发器、加热单元、冷却单元、真空单元、物料输送单元、保护单元、控制单元等。根据分离物料的性质，合理选择与配置各单元对成套蒸馏装置使用性能非常关键。西安特普讯团队由化学合成、化学工艺与工程、化工机械及自动化等专业的高级专家组成，工艺设备的设计考虑周全，在使用过程中更加贴近生产实际需要。

A complete set of molecular distillation unit includes: short path evaporator, heating unit, cooling unit, vacuum unit, material conveying unit, protection unit, control unit, etc. According to the properties of the separated materials, the rational selection and configuration of each unit is very critical to the performance of the complete distillation unit. TOPTION team is composed of senior experts in chemical synthesis, chemical process and engineering, chemical machinery and automation, etc. The design of the process equipment is well thought out, and it is closer to the actual production needs during the use process.

MDS 系列中试与生产装置是特普讯独立设计并经过多年改进形成的标准主机与多变型辅助设备配套的全工业化设备。

Pilot and production distillation unit is a fully industrialized equipment that is independently designed by TOPTION and formed after years of improvement.

● 设备特点 Features

各部件按照 24 小时连续运转设计与选型，并经过反复测试与评估，能满足工业生产的稳定性、可靠性及连续性要求。

Each component is designed and selected according to 24-hour continuous operation, and after repeated testing and evaluation, it can meet the stability, reliability and continuity requirements of industrial production.

各部件均能拆开清洗，可以满足多品种、小批量的工业化生产。

All parts can be disassembled and cleaned, which can meet the industrial production of multiple varieties and small batches.

结合用户产品性能和管理习惯选型的辅助设备在满足工艺需要的同时，方便用户维护与保养。

The auxiliary equipment selected in combination with the user's product performance and management habits not only meets the process needs, but also facilitates the user's maintenance.

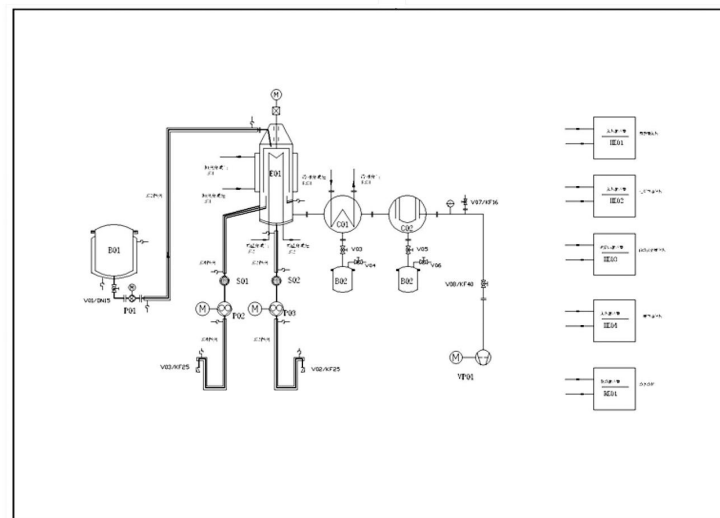


MDS系列设备常备选型 MDS Technical parameters

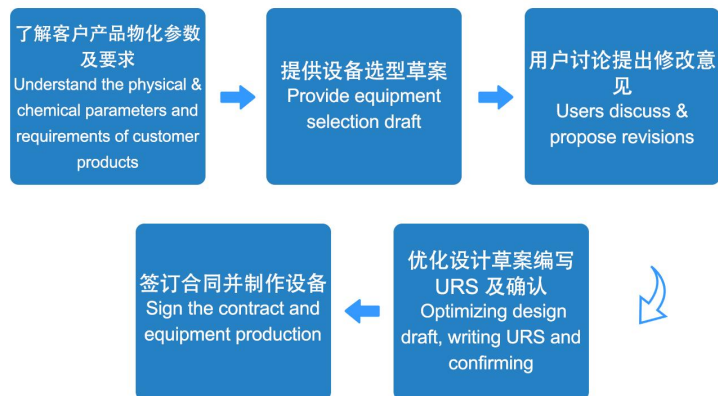
| 部件名称 Part Name | MDS-10 | MDS-20 | MDS-30 | MDS-50 | MDS-100 |
|---|--|--|--|--|--|
| 原料罐 Raw material tank | 10L 夹套罐储罐 10L Jacketed tank | 15L 夹套罐储罐 15L Jacketed tank | 30L 夹套罐储罐 30L Jacketed tank | 50L 夹套罐储罐 50L Jacketed tank | 100L 夹套罐储罐 100L Jacketed tank |
| 处理量 Throughput | 3~10L/H | 6~20L/H | 10~30L/H | 10~50L/H | 30~100L/H |
| 进料系统 Feeding system | 高精度齿轮泵 High precision gear pump | | | | |
| 蒸发器 Evaporator | 蒸发面积 0.1m ² Evaporation area 0.1m ² | 蒸发面积 0.2m ² Evaporation area 0.2m ² | 蒸发面积 0.3m ² Evaporation area 0.3m ² | 蒸发面积 0.5m ² Evaporation area 0.5m ² | 蒸发面积 1m ² Evaporation area 1m ² |
| 工艺冷阱 Process cold trap | 制冷机冷却 Chiller cooling | | | | |
| 保护冷阱 Protection cold trap | 液氮 / 制冷机 Liquid nitrogen / chiller | | | | |
| 重质出料 Heavy component discharge | 高精度齿轮泵 High precision gear pump | | | | |
| 轻质出料 Light component discharge | 高精度齿轮泵 High precision gear pump | | | | |
| 物料管路 Material pipeline | 夹层保温 Jacketed layer insulation | | | | |
| 电气控制柜 Electrical control cabinet | 非防爆 / 防爆 Non-explosion-proof / explosion-proof | | | | |
| 真空 Vacuum | 组合式 Combined type | | | | |
| 主蒸发器加热 Main evaporator heating | 控温 50℃~300℃ Temperature control 50℃~300℃ | | | | |
| 流经管路保温 Flow through line insulation | 备选 Optional | | | | |
| 重质份管路保温 Insulation of heavy components | 备选 Optional | | | | |
| 内冷恒温冷却 Internal cooling constant temperature cooling | 恒温循环器 Constant temperature circulator | | | | |
| 制冷 Refrigeration chiller | 液氮、制冷机 Liquid nitrogen, chiller | | | | |

MDS系列设备常备选型 MDS Technical parameters

| 部件名称 Part Name | MDS-200 | MDS-500 | MDS-600 | MDS-800 | MDS-1000 |
|---|--|--|--|--|--|
| 原料罐 Raw material tank | 100L 夹套罐储罐 100L Jacketed tank | - | - | - | - |
| 处理量 Throughput | 50-200L/H | 100-500L/H | 150-600L/H | 200-800L/H | 300-1000L/H |
| 进料系统 Feeding system | 高精度齿轮泵 High precision gear pump | | | | |
| 蒸发器 Evaporator | 蒸发面积 2m ² Evaporation area 2m ² | 蒸发面积 5m ² Evaporation area 5m ² | 蒸发面积 6m ² Evaporation area 6m ² | 蒸发面积 8m ² Evaporation area 8m ² | 蒸发面积 10m ² Evaporation area 10m ² |
| 工艺冷阱 Process cold trap | 制冷机冷却 Chiller cooling | | | | |
| 保护冷阱 Protection cold trap | 液氮 / 制冷机 Liquid nitrogen / chiller | | | | |
| 重质出料 Heavy component discharge | 高精度齿轮泵 High precision gear pump | | | | |
| 轻质出料 Light component discharge | 高精度齿轮泵 High precision gear pump | | | | |
| 物料管路 Material pipeline | 夹层保温 Jacketed layer insulation | | | | |
| 电气控制柜 Electrical control cabinet | 非防爆 / 隔爆 Non-explosion-proof / explosion-proof | | | | |
| 真空 Vacuum | 组合式 Combined type | | | | |
| 主蒸发器加热 Main evaporator heating | 控温 50°C~300°C Temperature control 50°C~300°C | | | | |
| 流经管路保温 Flow through line insulation | 备选 Optional | | | | |
| 重组份管路保温 Pipeline insulation of heavy components | 备选 Optional | | | | |
| 内冷恒温冷却 Internal cooling constant temperature cooling | 恒温循环器 Constant temperature circulator | | | | |
| 制冷 Refrigeration chiller | 液氮、制冷机 Liquid nitrogen, chiller | | | | |



• 单级设备用户实例 Single-stage device user instance



● 多级设备用户实例 Multi-stage device user instance

多级薄膜、短程蒸发器串联在一起，经过连续多级蒸馏，可实现多组份复杂混合物的分离。选型前需进行多次实验论证，不能简单拼装，为您提供选型、制作安装、售后服务跟踪是我们的职责，欢迎来电咨询。

Multi-stage thin film and short path evaporators are connected in series, and after continuous multi-stage distillation, the separation of multi-component complex mixtures can be realized. Before the model selection, multiple experiments are required, and it cannot be simply assembled. It is TOPTION responsibility to provide you with model selection, production and installation, and after-sales service tracking. Welcome to inquire.



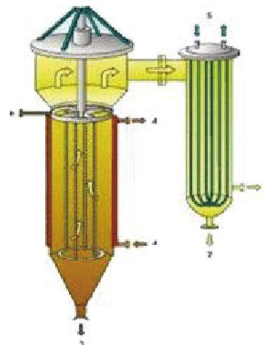
我们的服务 Our service

技术服务 TECHNICAL SERVICES

| | | | |
|----------------------------|---------------------------------------|----------------------------|---|
| 远程支持 Remote support | 视频技术支持 Video technical support | 在线支持 Online support | 现场安装、操作、 维护、维修和培训服务 Field installation, operation, maintenance, repair & training services |
|----------------------------|---------------------------------------|----------------------------|---|

薄膜蒸发 Thin film evaporation

● 工艺原理 Process principle



1. 进料 Material feeding
2. 轻馏份 Light components
3. 重馏份 Heavy components
4. 加热夹套 Heating jacket
5. 内置冷凝器 Built-in condenser
6. 真空系统 Vacuum system

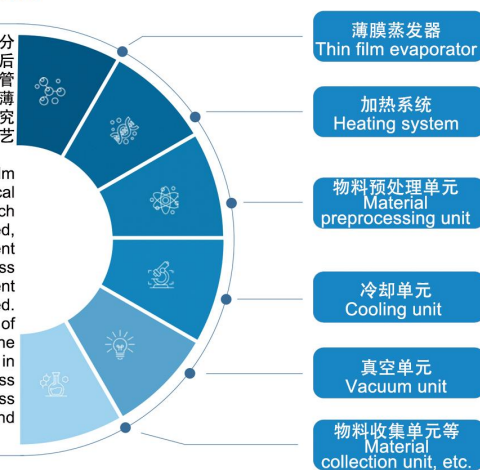
刮板式薄膜蒸发器是根据混合物各组份的沸点差，通过旋转刮板强制成膜进行热交换，并快速通过加热面，在真空条件下进行热分离的一种新型高效蒸发器。物料从加热区的上方加入蒸发器；经布液器分布到蒸发器加热面，然后旋转的刮板系统将物料连续均匀地分布在加热面，并以螺旋状向下推进。在此过程中，轻组份被蒸发形成蒸汽流上升，经汽液分离器后转移至外置冷凝器冷凝收集；重组份从蒸发器底部排出。

Scraper-type thin film evaporator is a new type of high-efficiency evaporator, which is based on the boiling point difference of each component of the mixture, forced to form a film by rotating scraper for heat exchange, and quickly passes through the heating surface to conduct heat separation under vacuum conditions. The material is fed into the evaporator from the top of the heating zone, it is distributed to the heating surface of the evaporator through the liquid distributor, and then the rotating scraper system continuously and evenly distributes the material on the heating surface, and pushes it downward in a spiral shape. In this process, the light components are evaporated to form a vapor flow that rises, and then transferred to the external condenser for condensation collection after passing through the vapor-liquid separator, the heavy components are discharged from the bottom of the evaporator.

● 成套装置 Complete set

一套完整的薄膜蒸馏装置选型时要考虑被分离物料各组份的物化性能及百分比、分离后各组份的纯度要求、企业工艺研究及设备管理经验等。西安特普讯可按工艺图纸制作薄膜蒸发成套装置，也可合作进行可行性研究和工艺开发，根据试验结果设计合理的工艺参数，提供交钥匙工程服务。

When selecting a complete set of thin film distillation unit, the physicochemical properties and percentages of each component of the material to be separated, the purity requirements of each component after separation, the enterprise process research and equipment management experience, etc. should be considered. TOPTION can manufacture a complete set of thin film evaporation devices according to the process drawings, and can also cooperate in feasibility research and process development, design reasonable process parameters according to the test results, and provide turnkey engineering services.



● 性能优势 Performance advantage

- ▶ 蒸发温度低 Low evaporating temperature
- ▶ 蒸发强度大 High evaporating intensity
- ▶ 受热时间短 Short heating time
- ▶ 操作弹性大 High operating flexibility

● 工业应用 Industrial application

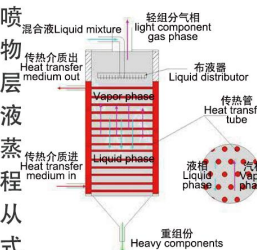
- ★ 短程蒸馏前级物料的脱气
Degassing of short path distillation fore-stage material
- ★ 精馏塔的再沸器
Reboiler of distillation column
- ★ 热敏性化合物的浓缩
Concentration of heat-sensitive compounds
- ★ 聚合物的在线解聚
On-line depolymerization of polymers
- ★ 工业废料的回收利用
Recycling of industrial waste
- ★ 食品工业中有害物质的去除
Removal of toxic substances in food industry
- ★ 有机化合物的脱色、除异味
Decolorization and deodorization of organic compounds
- ★ 化合物中残留溶剂的高精度去除
High-precision removal of residual solvents in compounds
.....



升、降膜蒸发装置 Rising and falling film evaporation device

● 蒸发原理 Evaporation principle

多元液体混合物从蒸发器顶部加入，经过布料器喷洒在蒸发器管壁上，由于表面张力及重力的作用，物料在蒸发器管壁上自然形成液膜并以液滴的形式逐层向下分布推进，蒸发器管内流动的加热介质不断向液膜传热，混合液中的轻组份就会成为汽相分子脱离蒸发管壁，在气相分子向上运动，液滴向下运动的过程中相互碰撞进行汽液交换和二次分配，最终浓缩液从蒸发器底部流出收集，轻相物质（溶剂）以气相形式从蒸发器顶部排出冷凝回收。

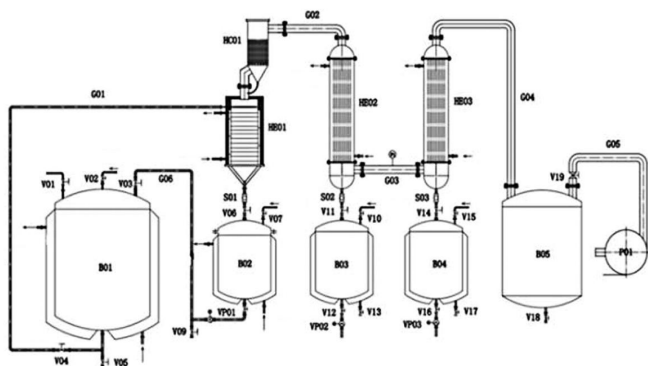


The multi-component liquid mixture is added from the top of the evaporator and sprayed on the evaporator tube wall through the distributor. Due to the action of surface tension and gravity, the material naturally forms a liquid film on the evaporator tube wall and distributes downward layer by layer in the form of droplets propelling, the heating medium flowing in the evaporator tube continuously transfers heat to the liquid film, and the light components in the mixed liquid will become vapor-phase molecules that detach from the wall of the evaporation tube, and collide with each other during the upward movement of gas-phase molecules and the downward movement of droplets. Carry out vapor-liquid exchange and secondary distribution, and finally the concentrated liquid is collected from the bottom of the evaporator, and the light phase material (solvent) is discharged from the top of the evaporator in the form of gas phase for condensation and recovery.

● 完整工艺流程 Complete process

先将设备系统内抽成负压状态，关闭真空阀 V03，打开进料阀 V01，储罐 B01 内的混合液在压力差下吸入蒸发器，汽化后的轻相物质（溶剂）经冷凝器 HE01、HE02 冷凝，收集于 B03、B04 储罐，重相浓缩液从蒸发器底部流出收集于 B02 储罐。随着蒸馏的进行，储罐 B01 内的物料进入负压体系使体系内压力升高，达到一定界限时停止进料，对系统进行再次抽真空后进料，如此循环使蒸馏控制在一定的压力范围内密闭进行。一个循环运行后浓缩液从 V02 取样分析，如溶剂残留达不到要求可通过输料泵 VP01 输送到储罐 B01 二次浓缩。

First pump the equipment system into a negative pressure state, close the vacuum valve V03, open the feed valve V01, the mixed liquid in the storage tank B01 is sucked into the evaporator under the pressure difference, and the vaporized light phase substance (solvent) passes through the condenser HE01, HE02 is condensed and collected in the B03 and B04 storage tanks, and the heavy phase concentrate flows out from the bottom of the evaporator and collected in the B02 storage tank. With the progress of the distillation, the material in the storage tank B01 enters the negative pressure system to increase the pressure in the system. When a certain limit is reached, the feeding is stopped, and the system is evacuated again and then fed, so that the distillation is controlled at a certain pressure. Closed within the scope. After one cycle runs, the concentrate is sampled from V02 for analysis. If the solvent residue does not meet the requirements, it can be transported to the storage tank B01 through the feeding pump VP01 for secondary concentration.



西安特普讯把传统升膜蒸发装置和连续输送泵结合起来，形成独特的连续化升膜蒸发装置，能够在减压状态下实现连续进出料，减少了大型溶剂储罐设计，节约了场地空间，是植物提取行业浓缩的理想装备。

TOPTION combines the traditional rising film evaporation device and the continuous conveying pump to form a unique continuous rising film evaporation device, which can realize continuous feeding and discharging under reduced pressure, reducing the design of large solvent storage tanks and saving site space, is the ideal concentration equipment for plant extraction industry.

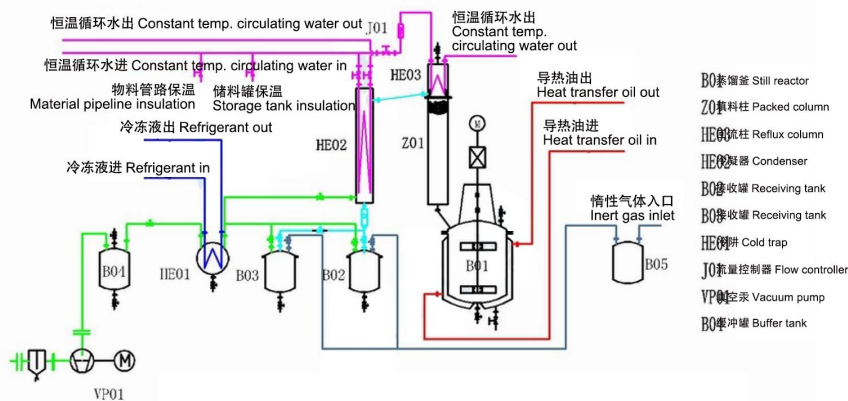


● 工业应用 Industrial application

- ★ 热敏物料的浓缩
Concentration of heat-sensitive materials.
- ★ 大批量溶剂回收
Large-scale solvent recovery.
- ★ 植物提取液快速浓缩
Rapid concentration of plant extracts.
- ★ 与精馏柱配套使用可回收工业废料，实现资源再利用
Use recyclable industrial waste together with rectification column to realize resource reuse.

精馏装置 Simple rectification unit

流程图 Flow chart



这款小型高真空蒸馏装置，采用导热油循环加热，由蒸馏釜、填料柱、冷凝器、接收罐及加热单元、制冷单元、真空泵组等部分组成，如图所示。该装置兼备了精馏塔分离纯度高和减压蒸馏蒸发温度低的优势，近年广泛应用于制药、精细化工、合成化学等领域，通过蒸馏纯化获得较高纯度的化学品。由于投资少，清洗方便，是一些多品种、小批量生产型化工企业的普遍选择。

This small high vacuum distillation device adopts heat-conducting oil for circulating heating, and is composed of distillation kettle, packing column, condenser, receiving tank, heating unit, refrigeration unit, vacuum pump group and other parts, as shown in the figure. The device has the advantages of high separation purity of rectification tower and low evaporation temperature of vacuum distillation. In recent years, it has been widely used in pharmaceuticals, fine chemicals, synthetic chemistry and other fields to obtain higher purity chemicals through distillation and purification. Due to the low investment and convenient cleaning, it is a common choice for some chemical enterprises with multiple varieties and small batches.

TOPT-J 系列简精馏装置选型 Technical parameters

| 型号 Model | 蒸馏釜容积 Distillation kettle volume | 填料柱规格 Packed column specifications | 接收罐规格 Receiving tank specifications |
|------------|-------------------------------------|---------------------------------------|--|
| TOPT-J-20 | 20L | Φ57 | 10L, 2个 (pcs) |
| TOPT-J-50 | 50L | Φ108 | 10L,30L, 各一个 (1pcs/size) |
| TOPT-J-100 | 100L | Φ159 | 10L,60L, 各一个 (1pcs/size) |
| TOPT-J-200 | 200L | Φ159 | 30L,120L, 各一个 (1pcs/size) |
| TOPT-J-500 | 500L | Φ200 | 100L,300L, 各一个 (1pcs/size) |

★ 性能特点及应用 Performance characteristics and applications

★ 蒸馏柱选用新型不锈钢规整填料，单位高度的理论塔板数高、压力降小，分离效果好。

The distillation column adopts a new type of stainless steel structured packing, the number of theoretical plates per unit height is high, the pressure drop is small, and the separation effect is good.

★ 带搅拌的加热釜，加速了热传递，升温快，釜体与物料的接触面温度低，不产生粘附和碳化。

The heated kettle with stirring accelerates the heat transfer, the temperature rises quickly, the temperature of the contact surface between the kettle body and the material is low, and no sticking and carbonization occur.

★ 选用组合式真空泵，泵前加装冷凝器并使用低温冷机冷却，使用真空球阀和精密的机械密封元件密封，系统真空度高，可达 10Pa(绝压) 以下。

A combined vacuum pump is selected, a condenser is installed in front of the pump and a low temperature cooler is used for cooling, and a vacuum ball valve and a precise mechanical sealing element are used for sealing. The system vacuum degree is high, which can reach below 10Pa (absolute pressure).

★ 成套装置所有排空口与惰性气体储罐相连，高温下物料不与空气接触，减少物料的热变质。

All the exhaust ports of the complete set of equipment are connected to the inert gas storage tank, and the material does not come into contact with the air at high temperature, which reduces the thermal deterioration of the material (ressure).

★ 物料流经管路采用夹套保温，蒸馏高熔点物料也不会堵塞。

The material flowing through the pipeline is insulated by jacket, and the distillation of high melting point material will not be blocked.



搅拌反应装置 Stirring Reactor

以搅拌反应釜为基础，配套冷凝器、分液器等，实现搅拌反应、回流、蒸馏、分水等功能。整体撬装设计，方便移动，不锈钢材质赋予干净美观的外观和结实耐用的使用价值，是研发实验室、新型科技公司的理想选择。

Based on the stirring reaction kettle, it is equipped with a condenser, a liquid separator, etc. to realize the functions of stirring reaction, reflux, distillation, and water separation. The overall skid-mounted design is easy to move, and the stainless steel material gives it a clean and beautiful appearance and durable use value. It is an ideal choice for R&D laboratories and new technology companies.



● 功能特点 Features

- 不锈钢材质，和常用的玻璃反应装置相比耐压高，容易实现较好的密封。应用于有机合成反应，安全性高。
Made of stainless steel, it has high pressure resistance compared with common glass reaction devices, and it is easy to achieve better sealing. Applied to organic synthesis reaction, high safety.
- 不锈钢传热性能好，加热、冷却迅速。
Stainless steel has good heat transfer performance, rapid heating and cooling.
- 搅拌强度大，可应用于高粘度或放热反应，加速反应时间。
High stirring intensity, can be applied to high viscosity or exothermic reaction, accelerate the reaction time.
- 内外抛光处理，可以满足 GMP 要求。
Polished inside and outside to meet GMP requirements.

● 基础型反应釜 Basic Reactor

技术参数 Technical parameters

| 型号 Model | 容积 Volume | 冷凝面积 Condensing area | 接收罐规格 Receiver tank specifications |
|----------|-----------|----------------------|------------------------------------|
| TDC-50L | 50L | 1m ² | 30L |
| TDC-100L | 100L | 2m ² | 50L |
| TDC-200L | 200L | 3m ² | 100L |
| TDC-300L | 300L | 3m ² | 100L |

功能 Function • 传热 Heat transfer • 搅拌 Stir • 回流 Reflow • 蒸馏 Distillation

● 多功能反应釜 Multifunctional Reactor

技术参数 Technical parameters

| 型号 Model | 容积 Volume | 冷凝面积 Condensing area | 接收罐规格 Receiver tank specifications | 分水器规格 Water divider specifications |
|------------|-----------|----------------------|------------------------------------|------------------------------------|
| TDC-I-50L | 50L | 1m ² | 30L | 2L |
| TDC-I-100L | 100L | 2m ² | 50L | 3L |
| TDC-I-200L | 200L | 3m ² | 100L | 3L |
| TDC-I-300L | 300L | 3m ² | 100L | 4L |

功能 Function

- 传热 Heat transfer
- 搅拌 Stirring
- 回流 Reflux
- 分水 Water separation
- 蒸馏 Distillation



● 超低温反应釜 Ultra-low temperature reactor

采用液氮作为制冷介质，制冷速度快，最低温度可达-120℃。它有十多年的生产和使用经验。经过不断改进，该反应器制作精良，运行稳定可靠，深受用户欢迎。TOPTION一直是一家优秀的低温反应设备供应商。

Using liquid nitrogen as the refrigeration medium, the cooling is fast, and the lowest temperature can reach -120℃. It has more than ten years of production and use experience. After continuous improvement, the reactor is well-made, stable and reliable in operation, and is well received by users. TOPTION has been one of the excellent low temperature reaction equipment providers.



技术参数 Technical parameters

| 型号 Model | 全容积 Full volume | 形式 Form |
|-------------|-----------------|-----------------|
| TOPT-D-50 | 50L | 撬装 Skid mounted |
| TOPT-D-100 | 100L | 撬装 Skid mounted |
| TOPT-D-200 | 200L | 撬装 Skid mounted |
| TOPT-D-300 | 300L | 撬装 Skid mounted |
| TOPT-D-500 | 500L | 撬装 Skid mounted |
| TOPT-D-1000 | 1000L | 撬装 Skid mounted |
| TOPT-D-2000 | 2000L | 撬装 Skid mounted |
| TOPT-D-3000 | 3000L | 撬装 Skid mounted |
| TOPT-D-5000 | 5000L | 撬装 Skid mounted |



结晶过滤设备 Crystallization filter equipment

● 溶解、结晶、过滤一体釜

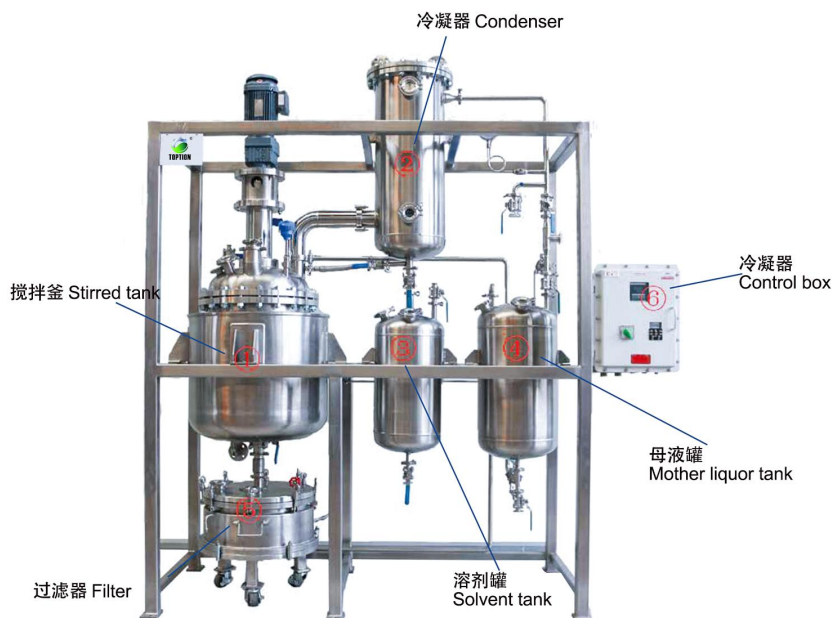
Dissolving, crystallization and filtering integrated reactor



溶解、结晶、过滤一体釜技术参数
Technical parameters of the integrated reactor for dissolution, crystallization and filtration

| 型号 Model | 容积 Volume | 冷凝面积 Condensing area | 母液罐 Mother liquor tank | 过滤器 Filter |
|----------|-----------|----------------------|------------------------|------------|
| TCF-50L | 50L | 0.3m ² | 30L | 25L |
| TCF-100L | 100L | 0.5m ² | 80L | 40L |
| TCF-200L | 200L | 0.5m ² | 150L | 60L |
| TCF-300L | 300L | 0.5m ² | 200L | 80L |

● **溶解、结晶、过滤、母液回收一体釜**
Integrated reactor for dissolution, crystallization, filtration and mother liquor recovery

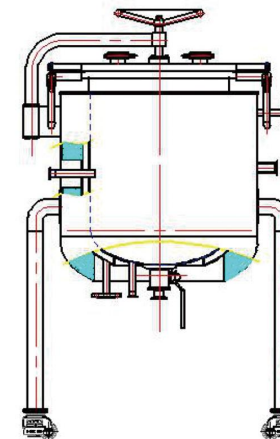


| 溶解、结晶、过滤、浓缩一体釜技术参数 Technical parameters of integrated reactor for dissolution, crystallization, filtration and concentration | | | | | |
|---|-----------|-------------------------|---|---------------------------|------------|
| 型号 Model | 容积 Volume | 冷凝面积 Condensing area | 接收罐规格 Receiving tank specifications | 母液罐 Mother liquor tank | 过滤器 Filter |
| TCFR-050 | 50L | 1m ² | 30L | 30L | 25L |
| TCFR-100 | 100L | 2m ² | 50L | 80L | 40L |
| TCFR-200 | 200L | 3m ² | 100L | 150L | 60L |
| TCFR-300 | 300L | 3m ² | 100L | 200L | 80L |

● **静态结晶罐 Static crystallizing tank**

功能特点 Features

- 带密封垫的开启上盖，密封性好，结晶过程不吸水。
The upper cover is opened with a sealing gasket, which has good sealing performance and does not absorb water during the crystallization process.
- 旋转式上盖，开启方便。
Rotary cover, easy to open.
- 外带隔热层，热损失小。
External thermal insulation layer, small heat loss.
- 不锈钢外胆，镜面抛光，干净卫生。
Stainless steel outer bladder, mirror polished, clean and hygienic.
- 带有底阀，清洗排液方便。
With bottom valve, easy to clean and drain.
- 移动脚轮，方便移动。
Mobile casters for easy movement.

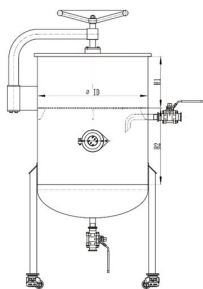


| 静态结晶罐选型 Selection of static crystallizing tank | | | | |
|--|-------|--------|--------|--------|
| 型号 Model | JL-50 | JL-100 | JL-200 | JL-500 |
| 容积 Volume | 50L | 100L | 200L | 500L |

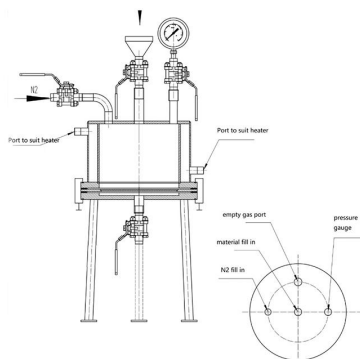
● 抽滤器和压滤器 Suction filter and pressure filter

功能特点 Features

- 旋转式上盖，开启方便。
Rotary cover, easy to open.
- 旋转式上盖，开启方便。
Filter bag filter, easy to remove crystals.
- 不锈钢外胆，镜面抛光，干净卫生。
Stainless steel outer bladder, mirror polished, clean and hygienic.
- 带有移动脚轮，方便移动使用。
With casters, it is convenient for moving.



| 抽滤器选型 Suction filter selection | | | | |
|--------------------------------|-------|-------|-------|-------|
| 型号 Model | GL-40 | GL-50 | GL-60 | GL-80 |
| ΦD | 400mm | 500mm | 600mm | 800mm |
| H1 | 300mm | 400mm | 400mm | 500mm |
| H2 | 400mm | 500mm | 500mm | 600mm |



备注：进N2，实现压滤

Note: Into the N2, to achieve pressure filtration

高真空干燥箱 High vacuum drying oven

● 功能特点 Features

- 圆形开启式箱门，气密性好，真空可小于 10pa
Circular open box door, good air tightness, vacuum can be less than 10pa.
- 箱体和内烘架同时加热，升温快，烘干时间短。
The box body and the inner drying rack are heated at the same time, the temperature rises quickly, and the drying time is short.
- 烘架可移出清洗，更换产品不污染。
The drying rack can be removed for cleaning, and the replacement product will not be polluted.
- 高真空烘箱规格及选型
Specification and selection of high vacuum drying oven.



Specification and selection of high vacuum drying oven

| 型号 Model | 烘盘数量 Number of baking trays | 层数 Layers | 排数 Row number | 烘盘尺寸 Baking pan size | 箱体内部尺寸 Dimensions inside the oven |
|------------|--------------------------------|--------------|------------------|-------------------------|--------------------------------------|
| TOPT-GZ-24 | 24 | 6 | 2 | 650×450×45 | 1300×1350 |
| TOPT-GZ-36 | 32 | 8 | 2 | 650×450×45 | 1500×1350 |
| TOPT-GZ-54 | 54 | 8 | 3 | 650×450×45 | 1500×2050 |

吸附柱 Column

移动式吸附柱 Mobile column

● 功能特点 Features

- 柱体可翻转，填装和取出填料方便。
The cylinder can be turned over for easy filling and removal.
- 翻转后带倾角排出填料，避免垂直排出填料时不可控流速造成静电引起的安全事故。
After turning over, the filler is discharged with an inclination angle to avoid safety accidents caused by static electricity caused by uncontrollable flow rate when discharging the filler vertically.
- 烧结板滤盘，不易泄露填料。
Sintered plate filter disc, not easy to leak packing.
- 整体可移动，清洗、填装和取出填料时可移至安全区域操作。
The whole is movable, and can be moved to a safe area for operation when cleaning, filling and removing the filler.
- 带夹套、可通热媒保温，层析过程无析出。
With jacket, heat medium can be passed through for heat preservation, and there is no precipitation in the chromatography process.



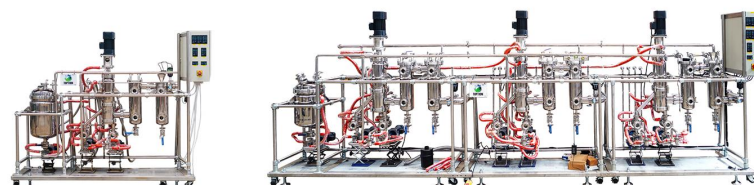
移动吸附柱规格及选型 Chromatography column specifications and selection

| 型号 Model | 内径 Inner diameter | 长度 Length | 滤板孔径 Filter plate aperture | 夹套 Jacket |
|----------|-------------------|-----------|----------------------------|-------------|
| DN150 | 150mm | 1500mm | 20μm | 可选 Optional |
| DN200 | 200mm | 1500mm | 20μm | 可选 Optional |
| DN300 | 300mm | 1500mm | 20μm | 可选 Optional |
| DN400 | 400mm | 1500mm | 20μm | 可选 Optional |

OEM 定制 OEM Customized

在全球细化分工的时代，OEM生产是大多企业的选择，特普讯有一支专业的工艺、机械、电器工程师团队，可以根据您的需要设计、制造分子蒸馏、薄膜蒸发、精馏及结晶提纯设备，前已和多家科技公司合作，西安特普讯是您可靠的合作伙伴。

In the era of global division of labor, OEM production is the choice of most companies. TOPTION has a team of professional process, mechanical and electrical engineers who can design and manufacture molecular distillation, thin film evaporation, rectification and crystallization purification equipment according to your needs. TOPTION will be your TOP OPTION.



MDS-10CE

MDS-10CE three stages type



MDS-20CE

MDS-10A

MDS-30CE Two stages type



MDS-50CE



MDS-50CE



MDS-50CE



MDS-100CE



MDS-200CE



Pharmaceutics



CBD Oil



Fish oil



Waterproof materials for construction



waterproof coating



Epoxy resin purification



Resin type



Thickening agent



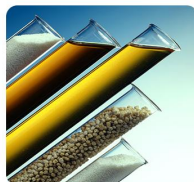
Liquid crystal materials



Color changing glass material



Waste oil treatment



Food additives



Essential oil



Incense oil



Clove oil



Garlic Essential Oil



Perfume



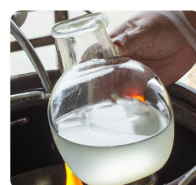
Lubricants



Plasticizer



Electronic chemical purification



Paraffin wax



Polymers demonomer



Purification of monoglycerides



Microcrystalline waxes



Fischer-Tropsch wax



Astaxanthin



Carotene



Capsaicin



Palm oil



Vitamin E



Insecticide



Pesticide purification