

上海旋玫工程技术有限公司  
Shanghai Xuanmei Engineering Technologies Co.Ltd

聚焦客户投资回报周期  
Focus On Your Payback Time

专注化学工程领域

- ◆ 液液分离
- ◆ 液固分离
- ◆ 气液分离
- ◆ 气固分离
- ◆ 空冷降温
- ◆ 废热制冷

Engage The Chemical Engineering

- ◆ Liquid liquid separation
- ◆ Liquid solid separation
- ◆ Gas liquid separation
- ◆ Gas solid separation
- ◆ Air cooler indirect cooling
- ◆ Waste heat to coolant

上海旋玫工程技术有限公司成立于2007年，致力于成为中国化学工程领域节能减排的引路人。为全球客户提供技术咨询、工程服务、故障诊断、撬装设备。在两相分离、物料降温等领域，我们的应用技术水平始终保持在世界前列。Shanghai Xuanmei Engineering Technologies Company was set up in 2007. Be committed to become the leader in energy saving and emission reduction in China Chemical Industry. Supply technology consulting, engineering service, trouble shooting, process equipment to global customers. Engage in Liquid-Gas-Solid separation and Fluid indirect cooling, all the know how remains at the forefront of the world.

2024年，与法国PEMTEC公司合资成立上海旋玫新材料有限公司，专注两相分离内件的开发、生产，并面向全球销售。Set up Shanghai Xuanmei New Material Co.Ltd with France PEMTEC in 2024. Focus on the research, production and global selling of the separation internals.

2025年，与辽宁石油化工大学成立旋流过滤分离联合工程实验室，专注工艺包开发、产品中试和工业放大。Set up the Hydrocyclone Filtering Separation Joint Engineering Laboratory with Liaoning Petrochemical University in 2025. Engage in process license development, pilot production and industrial amplification.

我们确信创新技术应该能有效地解决世界上最大的挑战，为帮助客户变得更有竞争力提供解决方案。We assure, innovative technology should be able to effectively address the world's greatest challenges. We commit to make customers be more competitive by sustainable solutions.



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## 工作原理 Principle :

两种互不相溶的流体以不低于0.8Mpa的压力进入分离器，流体沿着每根旋流管入口切向进入，在旋流管内高速旋转并向下推进，随着流道不断变窄，流体切向线速不断提升，最高可达100m/s并产生超过1500倍的重力加速度。由于两种介质存在密度差，就可以在2-3秒时间内轻相和重相的良好分离。Fluid is fed into the hydrocyclone tangentially with above 0.8Mpa pressure. This creates a centrifugal movement, pushing the heavier phase outward and downward alongside the wall of the conical part. The decreasing diameter in the conical part increases the line speed up to 100m/s and creates 1500 G force , and so enhances the separation in 2-3 seconds. Finally, the heavier phased are discharged through the underflow outlet. The vortex finder in the overflow part creates a fast rotating upward spiral movement of the fluid in the center of the conically shaped housing, and the lighter phase is discharged through the overflow outlet.

## 产品特性 Feature:

1. 根据每个项目的介质物性和分离要求定制化设计旋流管。Each liner of the specific project is tailor made to meet fluid physical property and separation requirement.
2. 单台分离器最大处理能力可达500 m<sup>3</sup>/h。Maximum capacity of each deoiler is up to 500 m<sup>3</sup>/h.
3. 被分离的轻相物质，无论是液态还是固态，密度差需要超过5%且粒径超过20微米。The lighter phase can be liquid or solid, the density difference shall be above 5% and the drop size shall be above 20 micrometer.
4. 流量大幅度变化下可采用多腔体设计。Multiple chambers design can handle the high flexibility.
5. 旋流管材质为316L、双相钢、钛材、哈氏合金。Liner material include 316L, Duplex steel, Ti, Inconel.

## 客户获得的益处 Benefit:

1. 极佳的抗堵性和耐腐蚀性 Best anti-fouling and anti-corrosion performance.
2. 占地面积小，撬装发货，配管安装方便。Skid design, less footprint space and piping work.
3. 无运动部件，连续运行不低于5年。No moving components, and the turndown time is over 5 years.

## 应用场合 Application:

1. 除油或者不溶性液体 Remove liquid such as oil or insoluble liquid
2. 除悬浮固体物 Remove suspended solids such as coke, catalystr.



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## 工作原理 Principle :

两种互不相溶的流体以不低于0.4Mpa的压力进入分离器，流体沿着每根旋流管入口切向进入，在旋流管内高速旋转并向下推进，随着流道不断变窄，流体切向线速不断提升，最高可达70m/s并产生超过1000倍的重力加速度。由于两种介质存在密度差，就可以在2-3秒时间内轻相和重相的良好分离。Fluid is fed into the hydrocyclone tangentially with above 0.4Mpa pressure. This creates a centrifugal movement, pushing the heavier phase outward and downward alongside the wall of the conical part. The decreasing diameter in the conical part increases the line speed up to 70m/s and creates 1000 G force, and so enhances the separation in 2-3 seconds. Finally, the heavier phased are discharged through the underflow outlet. The vortex finder in the overflow part creates a fast rotating upward spiral movement of the fluid in the center of the conically shaped housing, and the lighter phase is discharged through the overflow outlet.

## 产品特性 Feature:

1. 根据每个项目的介质物性和分离要求定制化设计旋流管。Each liner of the specific project is tailor made to meet fluid physical property and separation requirement.
2. 单台分离器最大处理能力可达360 m<sup>3</sup>/h。Maximum capacity of each desander is up to 360 m<sup>3</sup>/h.
3. 被分离的重相物质，无论是液态还是固态，密度差需要超过15%且粒径超过10微米。The heavier phase can be liquid or solid, the density difference shall be above 15% and the drop size shall be above 10 micrometer.
4. 流量大幅度变化下可采用多腔体设计。Multiple chambers design can handle the high flexibility.
5. 旋流管材质为316L、陶瓷、碳化硅。Liner material include 316L, Ceramic, SiC.

## 客户获得的益处 Benefit:

1. 分离过程中可以起到洗涤作用。Wash solids during separation.
2. 极佳的抗堵性和耐腐蚀性 Best anti-fouling and anti-corrosion performance.
3. 占地面积小，撬装发货，配管安装方便。Skid design, less footprint space and piping work.
4. 无运动部件，连续运行不低于5年。No moving components, and the turndown time is over 5 years.

## 应用场合 Application:

1. 除重质不溶性液体，比如沥青或酚类高分子化合物。Remove heavier insoluble liquids such as asphalt and phenol.
2. 除固体沉淀物，比如油泥、金属颗粒物、催化剂等。Remove sedimentary solids such as sludge, metal solids, catalyst.



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## 工作原理 Principle :

金属材料对水有良好的聚结性能，非金属材料对油有良好的聚结性能。当把金属材料和非金属材料混编在一起时，各自的聚结性能分别提高45%以上。细小的液滴在聚结材料表面上逐步聚结长大并快速从表面剥离，从而完成分离过程。聚结材料编织后的流体通道大小，决定了被分离物料的切割粒径，只有大于切割粒径的液滴才能被分离开来。Metallic materials have excellent coalescing properties for water, while non-metallic materials have excellent coalescing properties for oil. When these two materials are interwoven, the coalescing properties of each are improved by over 45%. Tiny droplets gradually coalesce and grow on the surface of the coalescing material, quickly peeling off from it and completing the separation process. The size of the fluid channels within the woven coalescing material determines the particle size of the material being separated, allowing only droplets larger than the cutting size to be separated.

## 产品特性 Feature:

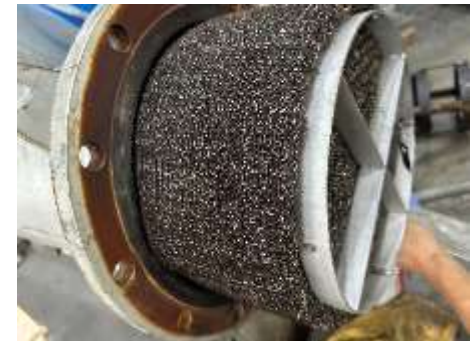
1. 金属材料包括316L、钛材，非金属材料包括聚丙烯、聚四氟乙烯、玻璃纤维等。Metal material include 316L and Ti, and Non-metal material include PP, PTFE and PVDF.
2. 流体通道从50微米到25毫米不等，以满足不同抗堵性需求。The fluid channel shall be 50 micrometers to 25 millimeters.
3. 不同型式聚结内件可以实现多级串联，从而实现气、液、固连续分离。To make gas, liquid and solid separate continuously, different configuration of the internals shall be installed in serial.
4. 内件通道结构型式包括板片式、规整填料式，编织圆柱式。The internals configuration include plate, structure packing and woven cylindrical.

## 客户获得的益处 Benefit:

1. 分离过程中可以起到混合作用。Static mixing during separation.
2. 占地面积小，撬装发货，配管安装方便。Skid design, less footprint space and piping work.
3. 无运动部件，连续运行不低于5年。No moving components, and the turndown time is over 5 years.

## 应用场合 Application:

1. 被分离的物料流量可达总流量的50%。The separated phase flow rate could be up to 50% of the total flow rate.
2. 做为深度分离的预处理设备。As the preliminary separation in the front of the deep separation.



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## 工作原理 Principle :

膜分离技术利用具有选择性孔隙的半透膜，在压力差、浓度差等推动力作用下，根据不同物质的分子大小、化学特性或离子大小，实现对液体或气体混合物的分离、浓缩和提纯。其原理基于膜的选择性透过能力，将需要分离的组分截留，而其他组分则通过膜成为渗透液。Membrane separation technology utilizes semi-permeable membranes with selective pores. Under the influence of driving forces such as pressure difference and concentration difference, it separates, concentrates and purifies liquid or gas mixtures based on the molecular size, chemical properties or ionic size of different substances. The principle is based on the selective permeability of the membrane, which retains the components to be separated while allowing other components to pass through the membrane as permeate.

## 产品特性 Feature:

1. 材料包括金属(特殊涂层)、聚四氟乙烯、玻璃纤维，陶瓷、碳化硅等。Material include coated metal, PTFE, PVDF, Ceramic, SiC
2. 流道间隙从10纳米到1微米不等，以满足不同处理能力需求。The fluid channel shall be 10 nanometers to 1 micrometer, to meet different capacity requirement.
3. 膜内件结构型式包括板片式、圆柱式、蜂窝式。The membrane internals configuration include plate, cylindrical and honeycomb.

## 客户获得的益处 Benefit:

1. 与密度差无关的深度分离。Deep separation independent of density difference.
2. 无运动部件，连续运行不低于5年。No moving components, and the continuous operation time is over 5 years.

## 应用场合 Application:

1. 被分离的物料含量少于1000ppm。The separated phase content shall be lower than 1000ppm.
2. 被分离物料的粒径小于5微米,比如催化剂、油滴。The cut size of the separated phase, shall be lower than 50 micrometers, such as catalyst, emulsified oil



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## 工作原理 Principle :

气液分离器工作原理基于物理学中的惯性碰撞、吸附聚结、重力沉降以及流体流向的改变。夹带液滴的气体在分离器内的特殊叶片束中被迫进行多次快速流向转变，高密度的液滴因惯性与叶片碰撞并黏附、聚结在一起，随后在重力作用下汇流并沿叶片流向底部排出。

Based on the principles of inertial collision, adsorption coalescence, gravitational sedimentation, and the change of fluid flow direction in physics. The gas carrying liquid droplets is forced to undergo multiple rapid flow direction changes within the special blade array in the separator. The high-density liquid droplets collide with and adhere to the blades due to inertia, and then coalesce together. Subsequently, under the influence of gravity, they converge and flow towards the bottom and are discharged.

## 产品特性 Feature:

1. 材料包括金属、陶瓷、聚四氟乙烯、碳化硅等。Material include coated metal, PTFE, Ceramic, SiC
2. 处理量大，压降低，抗堵性强。High capacity, low pressure drop, high anti-plugging.
3. 内件结构型式包括叶片式、旋流式，或者二者组合式。The internals configuration include vane type, cyclone type, and vane-cyclone type.

## 客户获得的益处 Benefit:

1. 与丝网除沫器相比，分离器直径更小。Smaller diameter of the column compare with demister.
2. 在一个内件内可同时分离液滴和固体颗粒物。Separate liquid and solid in one internal without plugging.
3. 无运动部件，连续运行不低于5年。No moving components, and the continuous operation time is over 5 years.

## 应用场合 Application:

1. 气体中的液滴粘度高，比如干气分离胺液。Separate high viscosity liquid, such as hydrocarbon gas- amine.
2. 气体中含有液滴和/或固体颗粒物。Separate liquid and/or solid from the gas.



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## 工作原理 Principle :

流体和水以一定比例进入水洗器，流体中盐溶解到水中，流体中非溶解性杂质转移到水中，再将水与流体分离开来。The fluid and water are mixed in a certain proportion and enter the desalting washer. The salt in the fluid dissolves into the water, or the non-dissolvable impurities is separated from the liquid and transferred into the water, and then the water and the fluid are separated from each other.

## 产品特性:Feature:

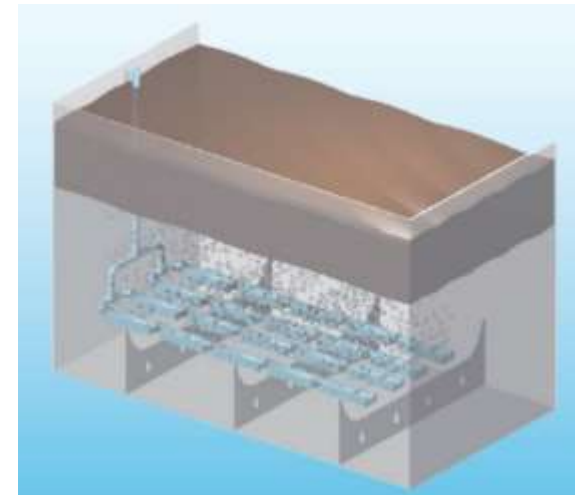
1. 静态混合 Static mixing
2. 对流传质 Convective mass transfer
3. 聚结或旋流分离 Coalescence or hydrocyclone separation

## 客户获得的益处Benefit:

1. 水洗可以减缓乳化倾向。Reduce emulsification.
2. 水洗可以将水溶性杂质去除，比如减少分馏塔内件的结盐。Remove dissolved impurity, such as salt, reduce fouling on the internals of the distillation column
3. 水洗可以让产品纯度提高。Make the product purity be more high.

## 应用场合 Application:

1. 油品除盐 Oil desalting
2. 污油除铁脱固 Deironing from the sludge oil
3. 油泥除油 Deoiling from the sludge oil
4. 淀粉洗涤, Starch washing



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# 空冷器间接喷雾降温 Indirect Spray Cooling For Air Cooler

## 工作原理 Principle:

装置蒸汽冷凝水或除盐水，经过增压后压力达到7.0Mpa以上。雾化喷嘴安装在风机下方，高压水自喷嘴喷出后立即汽化成雾并吸收空气中的热量，使得风机入口空气温度降低6-10°C，相应地降低管束内工艺介质温度。The steam condensate or demineralized water, enter the spray system at 7.0 Mpa pressure. The spray nozzles are installed below the fan. The high-pressure water is ejected from the nozzles and immediately vaporizes into a water mist. The water mist absorb the heat from the air, thereby reduce the inlet air temperature by 6-10°C, and correspondingly lowering the temperature of the process medium in the tube bundle.

## 产品特性 Feature:

1. 喷嘴呈环形布置在风机下方，喷雾方向与进风方向相反，有利于空气与水雾混合均匀。The nozzles are arranged in a circular pattern below the fan, The spray direction is opposite to the air intake direction, which is conducive to the uniform mixing of air and water mist.
2. 没有明水滴落。No water droplet fall down during operation
3. 喷嘴堵塞或者泄漏，可在不停风机和喷雾的情况下进行更换。Replace nozzles without shutdown the fan
4. 喷嘴安装在风机室外，因此对于风机室内的空间没有要求。No space limitation because the nozzles are installed outside of the fan.

## 客户获得的益处 Benefit:

1. 与直接喷淋相比可降低喷水量约70%以上。Reduce 70% of water consumption compare with direct spraying.
2. 可使风机皮带使用寿命增加，减少钢结构腐蚀和管束结垢的倾向。Increase the lift time of the belt and motor, reduce the steel structure corrosion and tube fouling.
3. 喷嘴堵塞或者泄漏，可在不停风机和喷雾的情况下进行更换。Replace or clean the spray nozzle without shutdown the fan.

## 应用场合 Application:

1. 汽轮机空冷岛 Steam turbine air condenser
2. 工艺空冷风机 Process air cooler



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电脱盐污水旋流除油、除油泥 Remove oil and sludge from crude oil desalting water



含硫污水破乳、除油、除焦粉 Remove emulsified oil and coke from refinery sour water



煤焦油减压闪蒸深度脱水 Remove water from coal tar oil by vacuum distillation



重整工艺空冷器间接喷雾降温 Indirect spray cooling for the air cooler in reformer unit



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# 一体化解决方案汇总 Total Solutions Summary



序号 No.	工艺装置 Process plant	解决方案 Solution
1	原油电脱盐污水 Crude oil desalting water	电脱盐排水除油除油泥 Remove oil and sludge
2	含硫酸性水 Sour water from distillation condense	破乳除油、除焦粉、除苯酚、除沥青胶质 Remove emulsified oil, coke, phenol, asphalt
3	分馏塔结盐 Salt-fouling in distillation tower	水洗除盐 Wash the flux oil by water
4	催化烟气脱硫脱硝循环洗涤水 Scrubber water in FCC catalyst cracking gas	循环洗涤水去除催化剂、泥沙等颗粒物 Remove catalysts and sand from circulating water
5	催化油浆 FCC residue oil	油浆脱催化剂，替代过滤器 Remove catalyst, replace filter
6	催化干气 FCC hydrocarbon gas	干气脱胺液 Remove amine liquid from gas
7	加氢柴油 Diesel from hydrogen cracking treatment	聚结或者减压闪蒸深度脱水 Deeply remove water by coalescence or vacuum system
8	加氢原料油 Feed oil in hydrogen cracking plant	去除悬浮固体物，替代精密过滤器 Remove suspended solids, replace filter
9	油品罐切水 Water from oil tank bottom	污水除油脱固 Remove oil and sludge
10	重污油 Heavy waste oil	污油洗涤、脱水、除铁 Water wash, remove water and iron compounds
11	海水淡化 Sea water desalination	海水除泥沙，替代过滤器 Remove suspended solids, replace the filter
12	乙烯急冷油 Ethylene quench oil	去除固体颗粒物，替代过滤器 Remove solids from oil, replace filter
13	空冷器 Air cooler/condenser	间接喷雾降温 Indirect spray cooling
14	涂装工业废水 Painting water	破乳除油除固体悬浮物 Remove emulsified oil and suspended solids
15	金属切削液 Metal cutting oil	去除固体颗粒物，替代过滤器 Remove solids from oil, replace filter

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核心价值观：诚信、尊重、多元化

Core Value: Integrity, Respect, Diversification

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