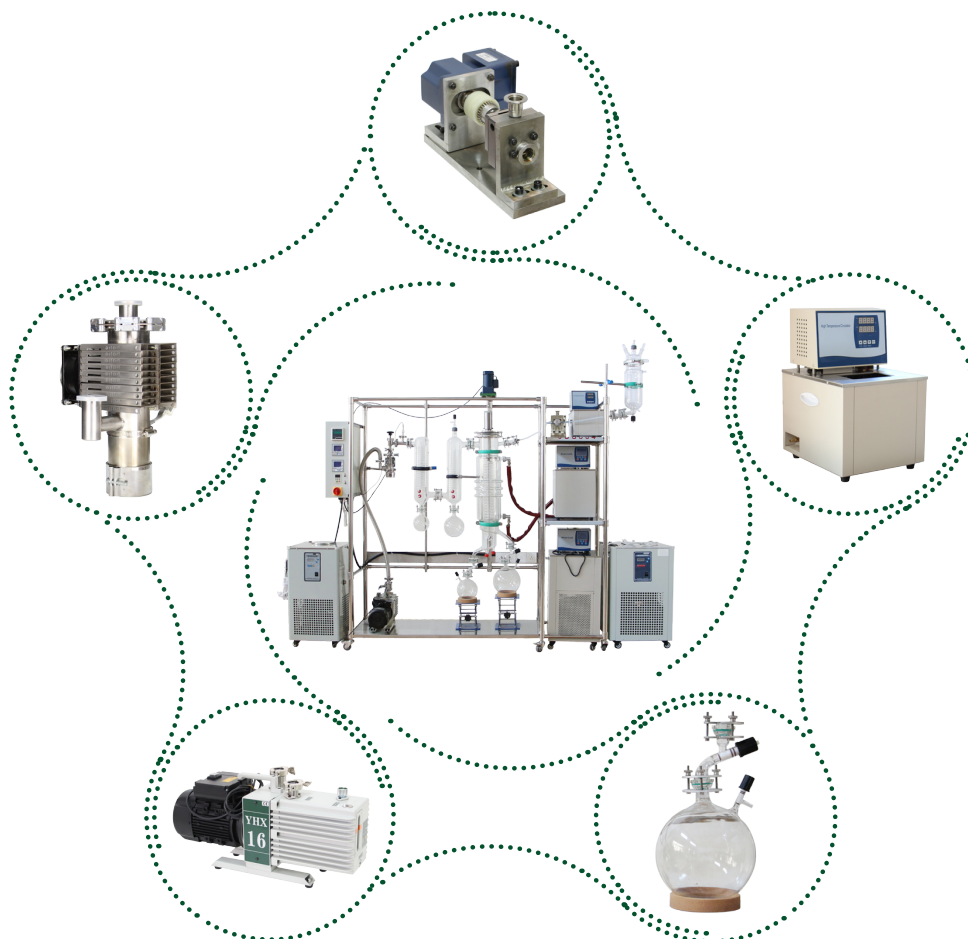
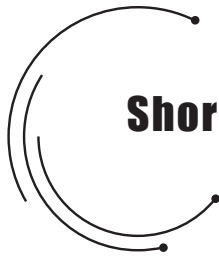


Short Path (Molecular) Distillation System

Turnkey solution for distilling plants oil concentrates

- Widely used in distilling & purifying plants oil concentrates
- Turnkey package provided for saving costs, energy and time of clients
- Multiple options of different packages fit for different production needs and purchase budgets
- Intelligently designed system to realize non-stop operation for high production rate

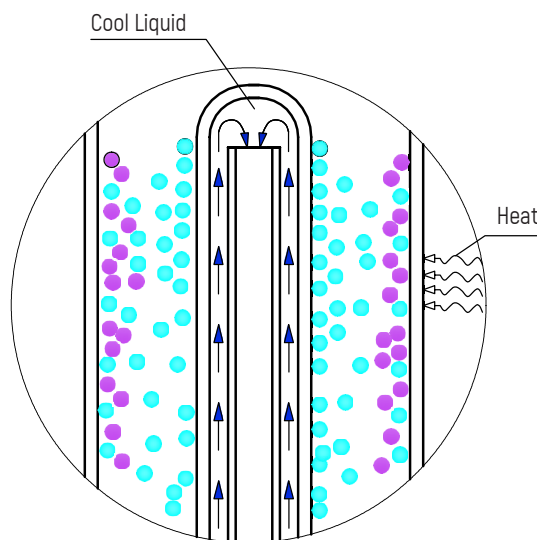




Short Path (Molecular) Distillation System

What is Short Path (Molecular) Distillation?

Short Path (Molecular) Distillation is a special liquid-liquid separation technology, which is different from the traditional distillation by boiling point difference separation principle, but by different substances molecular movement of the average free path difference to achieve separation.



Process of the Short Path (Molecular) Distillation

The process of Short Path (Molecular) Distillation when carried out in an apparatus designed for high vacuum in order to allow the molecules escape from the warm liquid into a cooler surface inside a condenser before coming in contact other molecules and finally settle down into the liquid is known as molecular distillation. This method is applied to purify heat sensitive, high boiling point, and high molecular weight materials.

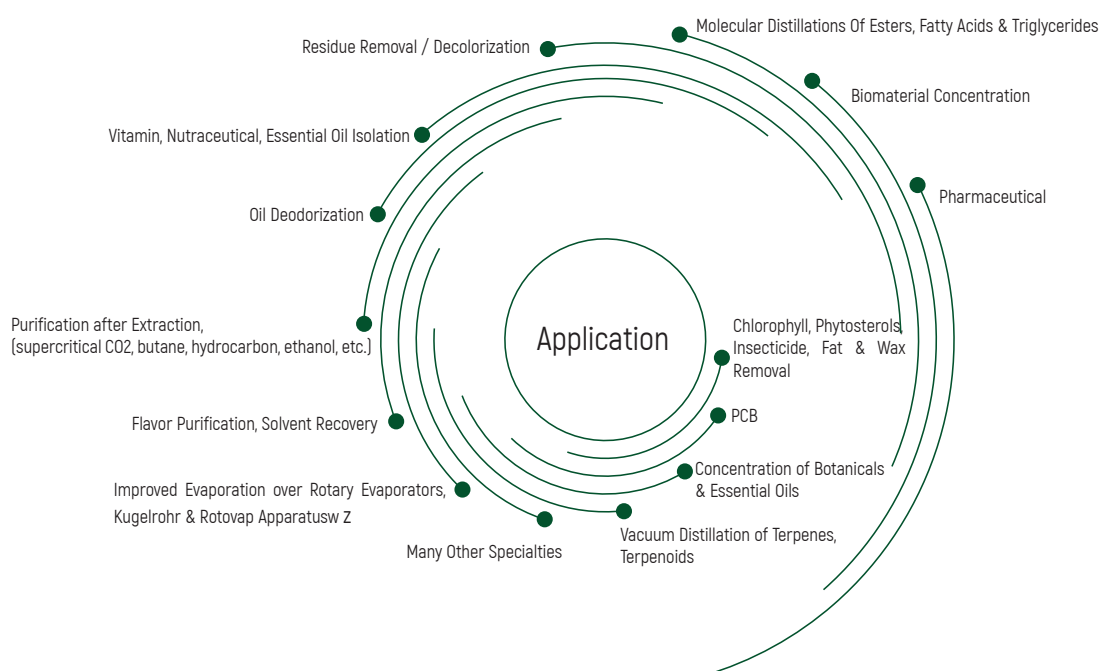
Short Path (Molecular) Distillation System

Advantages of the Short Path (Molecular) Distillation

Molecular distillation is considered as the safest mode of separation and to purify the thermally unstable molecules and related compounds with low volatility and elevated boiling point. The process distinguishes the short residence time in the zone of the molecular evaporator exposed to heat and low operating temperature due to vacuum in the space of distillation.

Application

Molecular Distillation is applied for separation of high boiling point, heat-sensitive and readily oxidizable materials.





Short Path (Molecular) Distillation System

A Case Study of Application of Short Path (Molecular) Distillation in Plant Oil Distillation

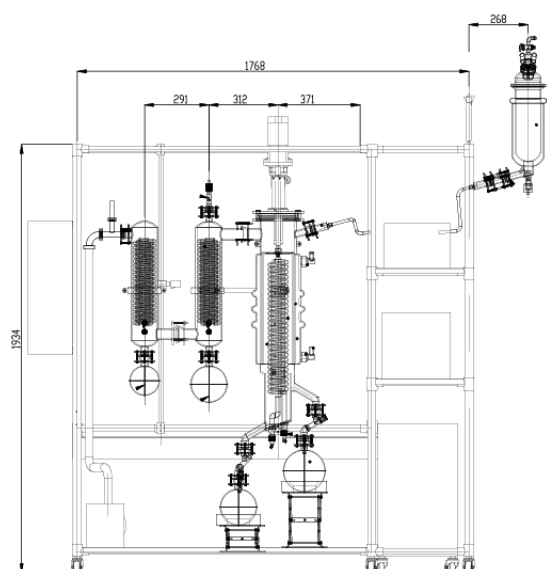
Molecular Distillation is also applied for creating a high value clear distillate from Plant Oil Concentrates, for example, refine cannabis and hemp concentrates into a golden clear distillate that can be infused into a variety of edible products or fine oils to be used in vape cartridges or other products.



Short Path (Molecular) Distillation System

Our Short Path (Molecular) Distillation System

Taking advantage of molecular distillation working principle, our YMD series Short Path (Molecular) Distillation System is a high efficient apparatus for distillation of plant oil concentrates like, to get high grade THC and CBD concentrates.

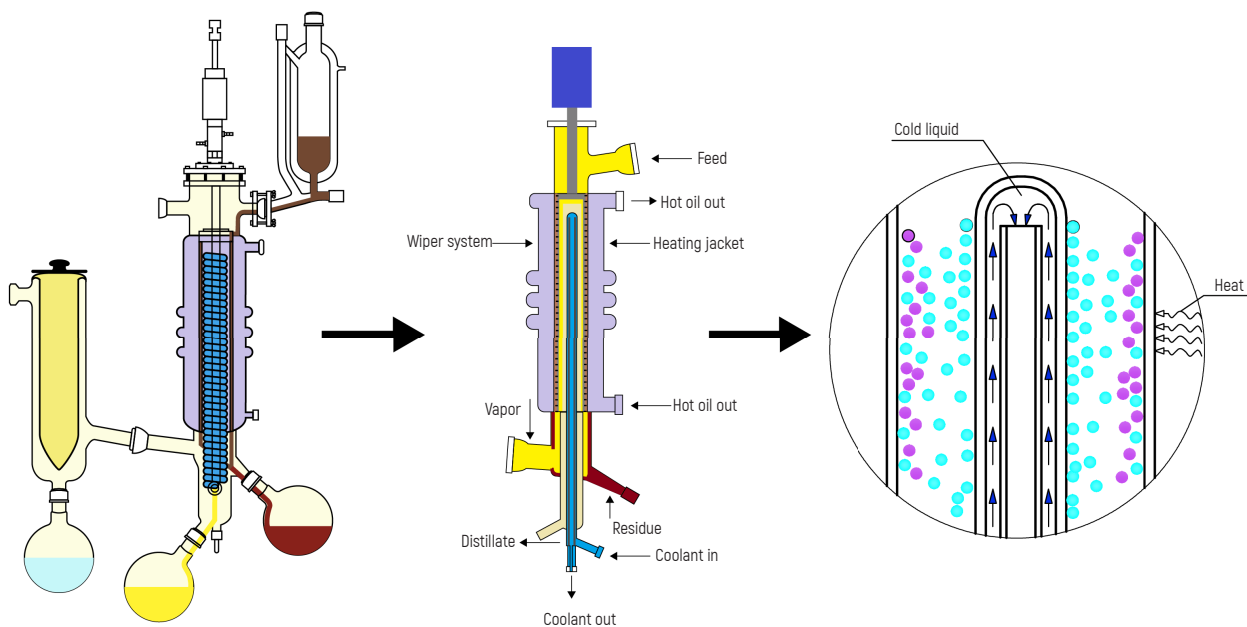


- Glassware parts are self-manufactured, with great flexibility in production, and can be completely customized according to customer requirements
- Magnetic seal components are independently developed to ensure maximum vacuum in the system and efficient evaporation
- Optional automatic feeding and discharging system for customers so as to increase production capacity and save manpower
- According to different customer's production needs and purchase budget, we provide customers with turnkey solutions

Short Path (Molecular) Distillation System

Working Process

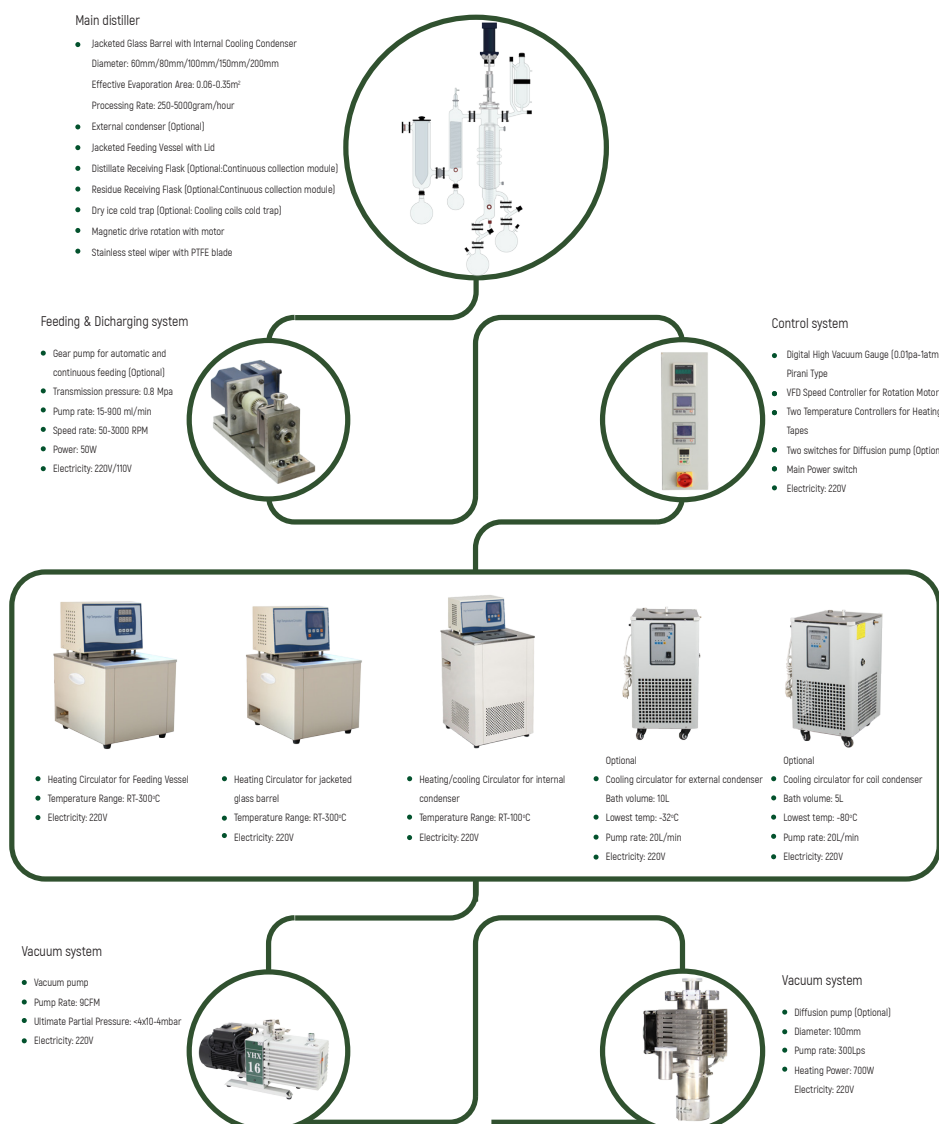
Feed material is delivered from a feed flask into the main jacketed evaporator, having heating from the jacket, and a diagonally slotted wiper mechanism forcing liquid around and downward in a thin film on the inside. In the center of the body is a closely positioned internal condenser, providing a short path for vapor molecules traveling from the heated surface to the condenser surface. For cannabinoids, the internal condenser fluid must be kept elevated ($\sim 70^{\circ}\text{C}$) to prevent high viscosity or freeze up of THC, CBD and related components. During the journey downward, lighter (lower boiling point) fractions of the liquid begin to vaporize, move to the internal condenser and condense, falling down as a liquid into a well that captures and separates the distilled liquid (like CBD or THC or other cannabinoids) which flows into the Distillate receiving flask. Heavier residue material (like chlorophyll, salts, sugars, heavy wax fractions of cannabis oil) does not evaporate and instead travels the length of the main evaporator body and flows into the Residue receiving flask.



Short Path (Molecular) Distillation System

Turnkey Package

YHCHEM is now offering turnkey packages for short path molecular distillation units.





Short Path (Molecular) Distillation System

Features

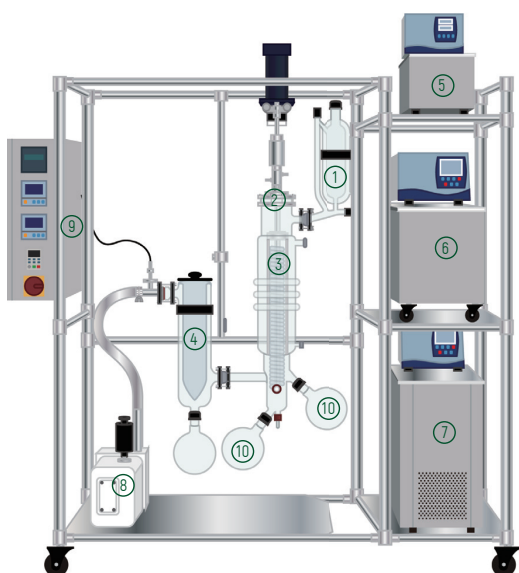
- Short residence time (separation is finished in seconds, instead of hours.).
- Low operating pressures to 0.1Pa (100Pa=1mbar). The very low operating pressure ensures very low distillation temperature and therefore a very gentle distillation is possible.
- Jacket design for efficient heating & excellent heat preservation
- Made of high borosilicate glass with great air tightness, easy for viewing evaporation and separation process
- Continuous distillation process
- Low distillation temperature
- High evaporation rates
- Wide choice of models (Diameter: 60mm, 80mm, 100mm, 150mm and 200mm), fit for clients at starting point, pilot production or scale production. Industrial grades (>=200mm) products are available upon request.
- Flexible design as clients' requirement for glass ware and support frame
- Turkey package which is plug-and-play, technical supports available.
- Multiple sets: one standard set and three advanced sets as clients' production need

Specification

Model	YMD-060	YMD-080	YMD-100	YMD-150	YMD-200
Barrel diameter(mm)	60	80	100	150	200
Feeding rate (g/hr)	250-500	500-750	750-1500	1500-3000	3000-5000
Feeding flask volume(L) * Customizable volume as clients' needs	1	1.5	2	2	5
Effective evaporation area(m ²)	0.06	0.1	0.15	0.24	0.35
Motor Power	90	120	120	120	200
Maximum speed(rpm)	500				
Distillate receiving flask * Customizable volume as clients' needs	1L	1L	2L	3L	5L
Residue receiving flask * Customizable volume as clients' needs	1L	1L	2L	3L	5L
Operation temperature	Up to 200°C				
Electrical requirement	220V/50-60Hz				

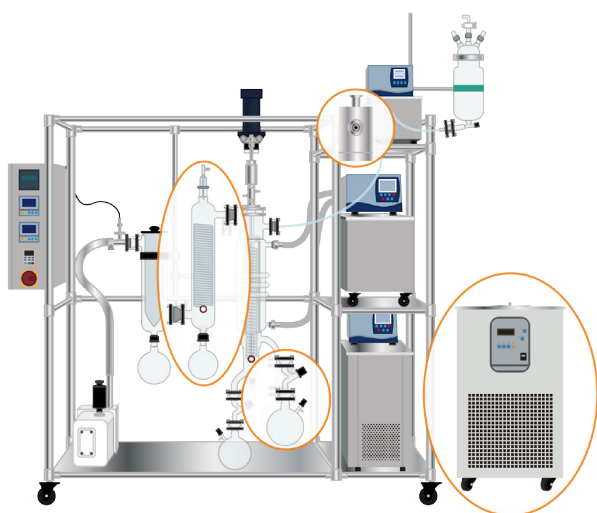
Short Path (Molecular) Distillation System

Available Packages



Standard Set

1. Jacketed feeding flask with manual feeding valve
2. Magnetic drive rotation with motor
3. Jacketed glass barrel with internal condenser
4. Dry ice cold trap
5. Heating circulator for jacketed feeding vessel
6. Heating circulator for jacketed glass barrel
7. Heating/cooling Circulator for internal condenser
8. Vacuum pump
9. Control system
10. Receiving flasks (Distillate and Residue)



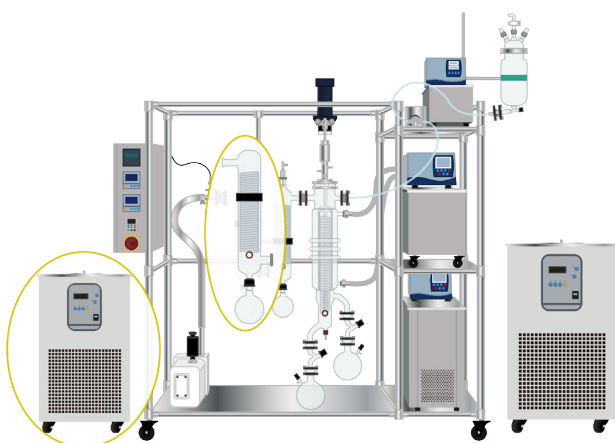
Upgraded Set I

Standard set plus

- ★ 1. Continuous collection module (Distillate and Residue)
- ★ 2. Gear pump for automatic and continuous feeding
- ★ 3. External condenser for collecting Terpenes
- ★ 4. Cooling circulator for external condenser

Short Path (Molecular) Distillation System

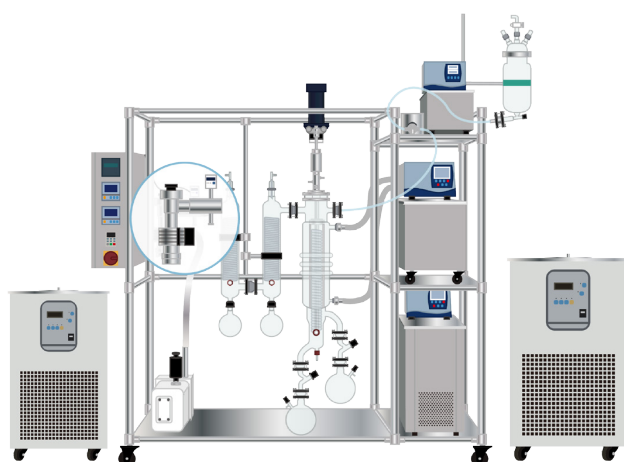
Available Packages



Upgraded Set II

Standard set plus

- ★ 1.Continuous collection module (Distillate and Residue)
- ★ 2.Gear pump for automatic and continuous feeding
- ★ 3.External condenser for collecting Terpenes
- ★ 4.Cooling circulator for external condenser
- ★ 5.Cooling coils cold trap
- ★ 6.Cooling circulator for cooling coils cold trap



Upgraded Set III

Standard set plus

- ★ 1.Continuous collection module (Distillate and Residue)
- ★ 2.Gear pump for automatic and continuous feeding
- ★ 3.External condenser for collecting Terpenes
- ★ 4.Cooling circulator for external condenser
- ★ 5.Cooling coils cold trap
- ★ 6.Cooling circulator for cooling coils cold trap
- ★ 7.Diffusion pump

Short Path (Molecular) Distillation System

Stainless Steel Short Path (Molecular) Distillation System

We also can provide turnkey solution for Stainless Steel Short Path (Molecular) Distillation System as clients' production need.

A complete set of Stainless Steel Short Path(Molecular) Distillation system includes:

- Short Path evaporator
- Feeding system
- Vacuum system
- Heating system
- Cooling system
- Material collection unit



Specification

Model	Evaporation Area m ²	Feeding Rate L/h	Feeding Method	Receiving Method	Equipment Height
YMD-06S	0.06	1-3	Adjustment made by differential pressure needle valve	Glass receiver	2000
YMD-1S	0.1	5-12	High-precision gear pump	Glass receiver	2350
YMD-1S-2	0.1	5-12	High-precision gear pump	Continuous discharge pump	2100
YMD-2S	0.2	10-25	High-precision gear pump	Stainless steel storage tank	2650
YMD-2S-2	0.2	10-25	High-precision gear pump	Continuous discharge pump	2650
YMD-5S	0.5	20-60	High-precision gear pump	Stainless steel storage tank	3300
YMD-5S-2	0.5	20-60	High-precision gear pump	Continuous discharge pump	3100
YMD-10S	1	50-120	High-precision gear pump	Stainless steel storage tank	4450
YMD-10S-2	1	50-120	High-precision gear pump	Continuous discharge pump	4250
YMD-15S	1.5	60-180	High-precision gear pump	Continuous discharge pump	4500
YMD-20S	2	100-200	High-precision gear pump	Continuous discharge pump	5000
YMD-30S	3	100-300	High-precision gear pump	Continuous discharge pump	6200
YMD-50S	5	200-5 00	High-precision gear pump	Continuous discharge pump	7500

Short Path (Molecular) Distillation System

Customer Cases

