

# Корпусы фильтра МК, MQ

## Технические характеристики

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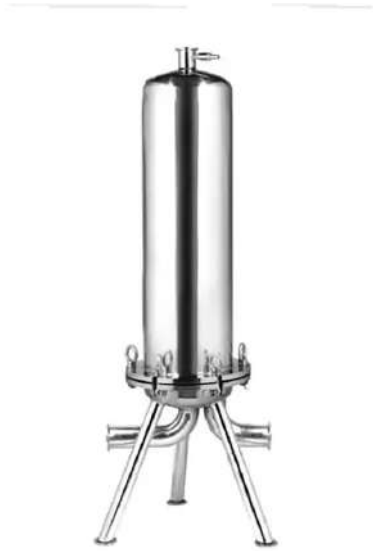
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## Filter Housing

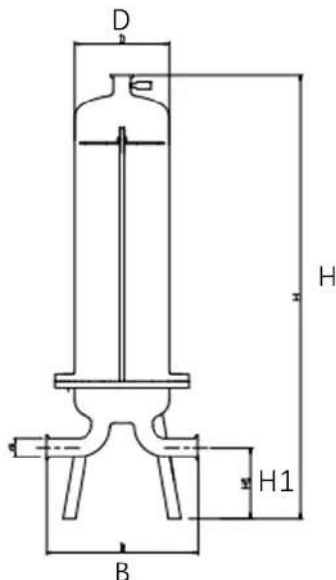
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1. Mirror Surface Finish Complete Stainless Steel Construction
  - a). Reduces bacterial/particle adhesion and no dead space;
  - b). Excellent corrosion resistance;
2. Easy To Install Design With Sanitary Connections, Easy to Clean
  - a). Available in tri-clamp, flanged and thread connections;
  - b). requires minimum floor space and quickly dismantles for easy cleaning;
3. Housings Accommodate From One (1) to Many 10", 20", 30" or 40" Cartridges
  - a). Suitable for small to large batch sizes and flow rates;
  - b). High pressure & high temperature designs are available;
4. Clean-in-Place (CIP) / Steam-in-Place (SIP) Design

## Typical Application

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1. Water Treatment, RO system;
2. Pharmaceuticals, API, Biologics;
3. Food and Beverage, Wine, Beer, Dairy, Mineral Water;
4. Paints, Inks Plating Solutions;
5. Process Chemicals and Electronics Industry;



# Technical Specification

|                     |                                                 |                                         |                                 |
|---------------------|-------------------------------------------------|-----------------------------------------|---------------------------------|
| Material:           | Housing                                         | Stainless Steel 304 and 316L for Choice |                                 |
|                     | O-Ring                                          | Silicone, Viton, EPDM, etc              |                                 |
| Surface Finish:     | Interior/Exterior                               | Electro polished, Ra≤0.2um              |                                 |
| Connections:        | Inlet/Outlet                                    | Tri Clamp                               | 1" to 10"<br>Or as your request |
|                     |                                                 | Flange                                  |                                 |
|                     |                                                 | Thread                                  |                                 |
|                     | Vent                                            | ¼" female                               |                                 |
|                     | Drain                                           | 1" male or as your request              |                                 |
| Lid/Cover Type:     | Swing Bolts or Tri Clamp(only for single round) |                                         |                                 |
| Designed Pressure:  | 10bar (145 psi) with in 30mins                  |                                         |                                 |
| Operating Pressure: | Max. 7.2 bar(108 psi)                           |                                         |                                 |
| Temperature:        | Max. 95 ℃ (sterilization 150 ℃)                 |                                         |                                 |
| Cartridge Adapter:  | 220, 222, 226, etc                              |                                         |                                 |
| Cartridge Capacity: | 1, 3, 5, 8..... 30, 36, 45 round                |                                         |                                 |

## Order Information

| Cartridges |        | Body Closure  | d<br>(outlet/inlet) | Dimensions(mm) |     |     |      |
|------------|--------|---------------|---------------------|----------------|-----|-----|------|
| Nos.       | Length |               |                     | D              | B   | H1  | H    |
| 1          | 5"     | Ferrule clamp | 1inch               | 102            | 180 | 120 | 570  |
|            | 10"    |               |                     |                |     |     | 690  |
|            | 20"    |               |                     |                |     |     | 940  |
|            | 30"    |               |                     |                |     |     | 1190 |
| 3          | 10"    | Stud bolts    | 1 1/4 inch          | 184            | 240 | 180 | 720  |
|            | 20"    |               |                     |                |     |     | 980  |
|            | 30"    |               |                     |                |     |     | 1210 |
| 5          | 10"    | Stud bolts    | 1.5 inch            | 219            | 280 | 200 | 130  |
|            | 20"    |               |                     |                |     |     | 990  |
|            | 30"    |               |                     |                |     |     | 1220 |
|            | 40"    |               |                     |                |     |     | 1460 |
| 7          | 20"    | Stud bolts    | 1 3/4 inch          | 273            | 420 | 210 | 1060 |
|            | 30"    |               |                     |                |     |     | 1290 |
|            | 40"    |               |                     |                |     |     | 1530 |
| 9          | 20"    | Stud bolts    | 2 inch              | 325            | 460 | 210 | 1080 |
|            | 30"    |               |                     |                |     |     | 1310 |
|            | 40"    |               |                     |                |     |     | 1550 |
| 12         | 20"    | Stud bolts    | 2 1/4 inch          | 350            | 480 | 240 | 1150 |
|            | 30"    |               |                     |                |     |     | 1380 |
|            | 40"    |               |                     |                |     |     | 1620 |
| 18         | 20"    | Stud bolts    | 3 inch              | 400            | 500 | 260 | 1160 |
|            | 30"    |               |                     |                |     |     | 1390 |
|            | 40"    |               |                     |                |     |     | 1630 |
| 21         | 20"    | Stud bolts    | 3.5 inch            | 450            | 600 | 280 | 1190 |
|            | 30"    |               |                     |                |     |     | 1420 |
|            | 40"    |               |                     |                |     |     | 1660 |

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# Industrial Equipment

## Single - effect energy-saving concentrator

### Introduction

The equipment is applicable for the concentration and recovery of industrial organic solvent(Such as alcohol) of traditional Chinese medicine,western medicine,glucose, starch sugar,oral liquid,chemical industry,food,monosodium glutamate and dairy products.It's can be used in the low temperature vacuum concentration of heat sensitive substances with small batches and large varieties.

### Feature

1. Alcohol recovery: Large recovery capacity. Adopt vacuum concentration process. It enhances more than 5-10 times production capacity of the same kind of equipment. The energy consumption is 30% reduced.
2. Liquid concentration: The equipment adopts external heating natural cycling mode and vacuum negative pressure evaporating mode, with instant evaporation and great concentrated specific gravity up to 1.3.



| Item                       | Heater     |           | Evaporator      |                 | Condenser      |                 |
|----------------------------|------------|-----------|-----------------|-----------------|----------------|-----------------|
|                            | Shell pass | Tube pass | Inside the tube | Jacket          | Shell pass     | Tube pass       |
| Design pressure(MPa)       | 0.09       | 0.09      | 0.09            | 0.09            | 0.3            | 0.09            |
| Working pressure(MPa)      | <0.09      | -0.07     | -0.07           | <0.09           | 0.25           | -0.07           |
| Design temperature(°C)     | <100       | <100      | <100            | <100            | 30-40          | <100            |
| Working temperature(°C)    | <100       | <100      | <100            | <100            | 30-40          | <100            |
| Medium                     | Steam      | Liquid    | Liquid          | Saturated steam | Chilling water | Secondary steam |
| Main material              | SUS304     | SUS304    | SUS304          | Q235B           | SUS304         | SUS304          |
| Volume(L)                  | 1100       |           |                 |                 |                |                 |
| Heat exchanging area(m²)   | 10         |           | 16.8            |                 |                |                 |
| Evaporation capacity(kg/h) | 500        |           |                 |                 |                |                 |

| Item                       | Heater     |           | Evaporator      |                 | Condenser      |                 |
|----------------------------|------------|-----------|-----------------|-----------------|----------------|-----------------|
|                            | Shell pass | Tube pass | Inside the tube | Jacket          | Shell pass     | Tube pass       |
| Design pressure(MPa)       | 0.09       | 0.09      | 0.09            | 0.09            | 0.3            | 0.09            |
| Working pressure(MPa)      | <0.09      | -0.07     | -0.07           | <0.09           | 0.25           | -0.07           |
| Design temperature(°C)     | <100       | <100      | <100            | <100            | 30-40          | <100            |
| Working temperature(°C)    | <100       | <100      | <100            | <100            | 30-40          | <100            |
| Medium                     | Steam      | Liquid    | Liquid          | Saturated steam | Chilling water | Secondary steam |
| Main material              | SUS304     | SUS304    | SUS304          | Q235B           | SUS304         | SUS304          |
| Volume(L)                  | 1100       |           |                 |                 |                |                 |
| Heat exchanging area(m² )  | 18         |           | 28              |                 |                |                 |
| Evaporation capacity(kg/h) | 1000       |           |                 |                 |                |                 |

# Industrial Equipment

## Dual - effect energy-saving concentrator

### Introduction

Applicable to low temperature vacuum concentration of heat sensitive materials, especially applicable to concentration of traditional Chinese medicine, western medicine, starch sugar and other water solution.

### Feature

After being compressed through hot pump, the single effect secondary steam is supplied to the single effect heating, so that large amount of steam is saved and production cost is reduced.



### Specification

- 1.Extraction tank capacity ( $\text{m}^3$ ) : 1, 2, 3, 6.
2. Concentrator volume ( $\text{m}^3$ ) :0.5, 1, 1.5, 2.5.
- 3.Water temperature:90–100°C.
4. Alcohol temperature: 78–83°C.
5. Time: 4–5 H/b.
6. Vacuum degree: 0. 05–0. 08MPa.
7. Used pressure: 0. 08–0. 2MPa.

Traditional Chinese medicine

| Item                               |                                           | Traditional Chinese medicine with heat pump | Traditional Chinese medicine          |
|------------------------------------|-------------------------------------------|---------------------------------------------|---------------------------------------|
| High ejection steam pressure (MPa) |                                           | 0.5-0.6                                     | 0.1-0.25                              |
| Thermal compressor noise (DB (A) ) |                                           | 80-85                                       |                                       |
| Theoretical steam-water ratio      |                                           | 0.30                                        | 0.50                                  |
| Actual steam-water ratio           |                                           | 0.33-0.35                                   | 0.65-0.75                             |
| Single of effect                   | Shell vacuum (MPa)                        | 0.03-0.04                                   | 0.1-0.25                              |
|                                    | Heating steam temperature(°C)             | 85-90                                       | 110-120                               |
|                                    | Vacuum degree of evaporation chamber(MPa) | 0.06-0.068                                  | 0.03-0.04                             |
|                                    | Boiling point(°C)                         | 70-75                                       | 85-90                                 |
| Second of effect                   | Shell vacuum (MPa)                        | 0.060-0.068                                 | 0.03-0.04                             |
|                                    | Heating steam temperature(°C)             | 70-75                                       | 85-90                                 |
|                                    | Vacuum degree of evaporation chamber(MPa) | 0.082-0.089                                 | 0.07-0.08                             |
|                                    | Boiling point(°C)                         | 52-57                                       | 60-67                                 |
| Cooling water consumption          |                                           | 1L                                          | 1. 43L                                |
| Operability                        |                                           | Simple operation, easy to observe           |                                       |
| Economical efficiency              |                                           | small ground occupation and low cost        | small ground occupation and high cost |

# Industrial Equipment

## Three - effect energy-saving concentrator

### Introduction

The concentrator adapted to traditional Chinese medicine, western medicine, glucose, starch, monosodium glutamate, food, chemical and other liquid condensed materials, especially for low-temperature heat-sensitive objects like vacuum concentration.

### Feature

1. The heating chamber tube, tube condenser, the middle of ISO standards are used to connect pipe polished mirror surface tube inside and outside to ensure smooth flow of materials, no arrest, no heating chamber of coking clogging, scaling and cleaning to reduce the number of increase production efficiency.
2. The heating chamber, evaporation rounded interior surface of the transition, no dead ends, all weld grinding, surface polished to  $Ra < 0.4 \mu m$ .
3. The concentrator and the natural cycle with external heating, vacuum evaporation, with evaporation speed, concentration ratio of heavy cream confined income.
4. The concentrator at the same time by three-way evaporation, secondary steam used repeatedly.



| Item                           | MK3-5    | MK3-10 | MK3-15             | MK3-20 | MK3-30                      | MK3-50 |
|--------------------------------|----------|--------|--------------------|--------|-----------------------------|--------|
| Max evaporating capacity(Kg/h) | 500      | 1000   | 1500               | 2000   | 3000                        | 5000   |
| Steam pressure(MPa)            | 0.3-0.09 |        |                    |        |                             |        |
| Steam consumption(kg/h)        | ≤200     | ≤400   | ≤600               | ≤800   | ≤1200                       | ≤2000  |
| Cooling water consumption(t/h) | 5        | 10     | 13                 | 15     | 18                          | 25     |
| Length(m)                      | 5.0      | 6.5    | 7.0                | 7.5    | 7.8                         | 8.0    |
| Width(m)                       | 1.3      | 1.5    | 1.7                | 2.0    | 2.0                         | 2.0    |
| Height(m)                      | 3.3      | 3.5    | 4.3                | 4.5    | 4.5                         | 4.5    |
|                                |          |        | Vacuum degree(MPa) |        | Evaporating temperature(°C) |        |
| Single-effect                  |          |        | -0.04              |        | 85                          |        |
| Second-effect                  |          |        | -0.06              |        | 75                          |        |
| Third-effect                   |          |        | -0.08              |        | 65                          |        |

# Industrial Equipment

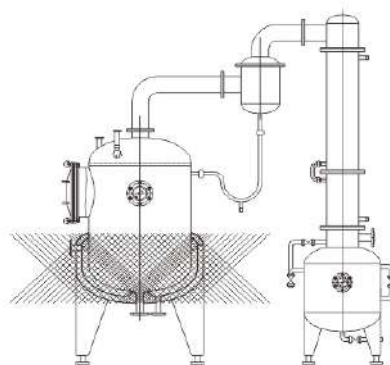
## Vacuum pressure-relief concentrator

### Introduction

The equipment is applicable for the concentration and recovery of industrial organic solvent (Such as alcohol) of, traditional Chinese medicine, western medicine, glucose, starch sugar, oral liquid, chemical industry, food, monosodium glutamate and dairy products. It can be used in the low temperature vacuum concentration of heat sensitive substances with small batches and large varieties.

### Feature

1. Alcohol reclamation. Large reclamation capacity and the vacuum concentration procedure make its production capacity five to ten times that the old counterpart and can lower the energy consumption for 30%, featuring little investment and high reclamation profit.
2. Concentrated liquid material: The device uses the modes of outer heated natural cycle and vacuum negative pressure evaporation featuring swift evaporation with concentration proportion of 1.3; The liquid material concentrates without bubble under full seal state. The drug liquid after concentration by the device features pollution-free and thick drug taste and easy cleaning.



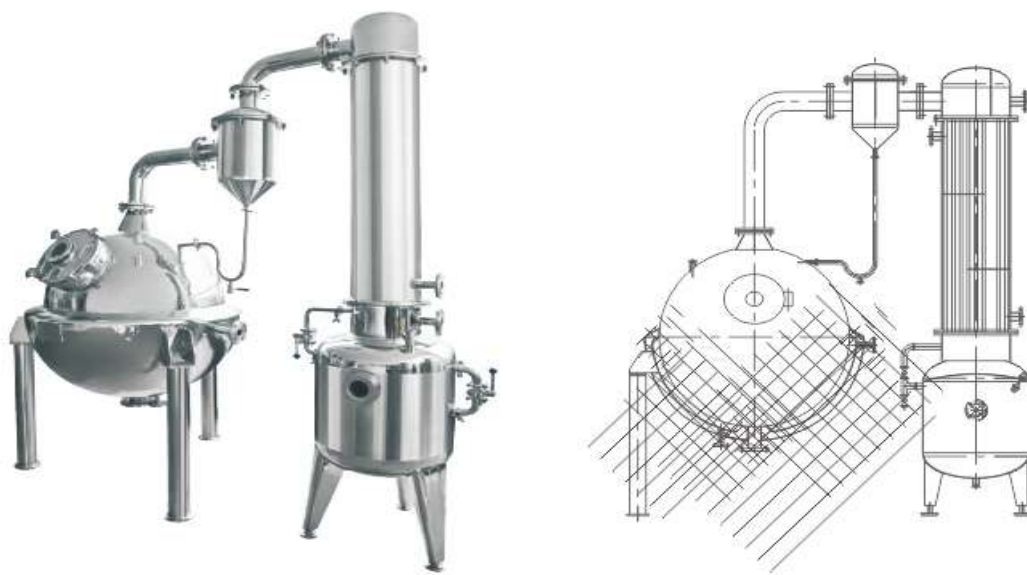
| Specification \ Model            | MK-5      | MK-10 | MK-20 | MK-30 | MK-50 | MK-70 | MK-100 |
|----------------------------------|-----------|-------|-------|-------|-------|-------|--------|
| Volume(L)                        | 50        | 100   | 200   | 300   | 500   | 700   | 1000   |
| Tank volume(L)                   | 35        | 45    | 60    | 76    | 100   | 125   | 165    |
| Interlayer pressure(Mpa)         | 0.098     |       |       |       |       |       |        |
| Vacuum degree(MPa)               | 0.06-0.07 |       |       |       |       |       |        |
| Heating are(m <sup>2</sup> )     | 0.25      | 0.59  | 0.8   | 1.1   | 1.45  | 1.8   | 2.2    |
| Condensing area(m <sup>2</sup> ) | 1.2       | 1.7   | 2.4   | 3.0   | 3.3   | 3.6   | 4.1    |
| Cooling are(m <sup>2</sup> )     | 0.29      | 0.35  | 0.45  | 0.6   | 0.7   | 0.85  | 1.05   |
| Length(m)                        | 1.2       | 1.7   | 1.7   | 1.7   | 2.1   | 2.4   | 2.39   |
| Width(m)                         | 0.6       | 0.8   | 0.8   | 1.0   | 1.2   | 1.3   | 1.3    |
| Height(m)                        | 2.2       | 2.7   | 2.7   | 3.4   | 3.4   | 3.4   | 3.72   |
| Water consumption(kg/h)          | 3         | 5     | 6     | 8     | 10    | 11    | 15     |

# Industrial Equipment

## Ball Concentrator

### Introduction

The roundness concentration tank, consisting of main body, condensator, gas liquid separator and liquid receiving barrel, serves to concentrate, distil the material liquid and reclaim organic menstruum in the pharmacy, foodstuff and chemistry. The concentration under reduced pressure brings short time of concentration and prevent the destruction of the effective content in the thermal sensitive material. The fact that the part in contact with the material is made with stainless steel brings qualified anti-corrosion performance, meeting with the GMP standard.



| Specification \ Model             | MQ-300         | MQ-500         | MQ-700         | MQ-1000        |
|-----------------------------------|----------------|----------------|----------------|----------------|
| Evaporation quantity(kg/h)        | 70             | 120            | 145            | 195            |
| Nominal volume(L)                 | 300            | 500            | 700            | 1000           |
| Inside diameter of ball(mm)       | 800            | 990            | 1115           | 1250           |
| Steam pressure(MPa)               | 0.098          |                |                |                |
| Vacuum degree (MPa)               | 0.06-0.07      |                |                |                |
| Heating area(m <sup>2</sup> )     | 1.1            | 1.6            | 2              | 2.5            |
| Condensing area (m <sup>2</sup> ) | 2.4            | 3.2            | 3.5            | 4.5            |
| Outline dimension                 | 1900*1100*2300 | 2030*1200*2500 | 2100*1300*2500 | 2335*1520*2765 |
| Equipment weight(kg)              | 380            | 450            | 630            | 950            |
| Steam consumption(kg/h)           | 77             | 132            | 159            | 214            |
| Water consumption(t/h)            | 2              | 4              | 6              | 7              |
| Steam inlet(m/m)                  | 25             | 25             | 40             | 40             |
| Water inlet and outlet(m/m)       | 30             | 30             | 40             | 40             |

## Filtration series

### Microporous filter

#### Introduction

The filter is made to FDA standard by bringing in technique, the raw material is high-quality stainless steel (304, 316L) is small, light, pollution-free and convenient to use besides, it has big filter area, low blocking rate, fast filter speed, good thermal stability and chemical stability. The filter can remove most granules so it's widely applied in fine filter and sterilization.



### Double filter

#### Introduction

This equipment is used to filter various solids or colloids in the liquids such as traditional Chinese medicine, western medicine, fruit juice, sirup, milk and beverages etc. Two filters can be changed over. The filter screen can be cleaned without stopping.



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