

# VACUUM FILTRATION

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## Introduction

Vacuum filtration is used primarily in microbiological and analytical procedures that involve collecting a particulate (bacteria, precipitate, etc.) from a liquid suspension. Liquid poured into a funnel passes through a filter, which retains the particulate, and filtrate can be collected into a filter flask, directly or via a vacuum manifold. Applying vacuum reduces process time compared to gravity flow.

Advantec supplies a wide range of vacuum filter holders and accessories. Select from glass, polysulfone, or stainless steel assemblies with funnels holding from 15 to 1000 mL. See facing page for more details on supports.

|                                    |   |  |   |                      |
|------------------------------------|---|--|---|----------------------|
| Typical Applications               | DNA/RNA hybridization, protein binding, receptor binding studies and gravimetric analysis | Coliform, yeast, mold, total bacteria, sterility testing | Colony hybridization, procedures requiring larger filtration area |                      |
| <b>Recommended Models</b>          |   |  |   |                      |
| Glass with glass frit              | KG 13   | KG 25  | KG 47   | KG 90                |
| Glass with stainless steel support | -   | KGS 25   | KGS 47  | KGS 90               |
| Glass with PTFE support            | -   | -  | KGT 47  | -                    |
| Glass with all-PTFE seal           | -   | -  | KGT 47 TF   | -                    |
| All-glass assembly                 | -   | GFA 25<br>GFS 25   | GFA 47<br>GFS 47<br>GFT 47  | -                    |
| Phase/Fraction collector           | -   | -  | P/FC 1<br>P/FC 2  | -                    |
| Polysulfone                        | -   | -  | KP 47   | -                    |
| Stainless steel                    | -   | -  | KSF 47  | -                    |
| <b>Filter Specifications</b>       |   |  |   |                      |
| Membrane diameter                  | 25 mm   | 25 mm  | 47 mm   | 90 mm                |
| Filtration area                    | 1.2 cm <sup>2</sup>   | 2.1 cm <sup>2</sup>                                      | 9.6 cm <sup>2</sup> *   | 43.2 cm <sup>2</sup> |

\* See individual models for exceptions.

## Glass Microfiltration: Support Systems

### Sintered Glass Support (Glass Frit)

- Glass frit (nominal retention 30-50 microns)
- Recommended when filtering highly acidic (low pH) solutions or when slower flow rates are preferred to maximize contact with the filter or reagent
- Ground glass seal

| Diameter | Funnel Size |        |        |        |        |        |         |
|----------|-------------|--------|--------|--------|--------|--------|---------|
|          | 13/100 mL   | 15 mL  | 100 mL | 150 mL | 300 mL | 500 mL | 1000 mL |
| 13 mm    | 311100      | -      | 311000 | -      | -      | 311050 | 311110  |
| 25 mm    | -           | 311200 | -      | 311280 | 311290 | -      | -       |
| 47 mm    | -           | -      | 311480 | -      | 311400 | 311490 | 314110  |
| 90 mm    | -           | -      | -      | -      | -      | -      | 352100  |

### Stainless Steel Support

- Stainless steel screen (Type 316, 100 mesh)
- PTFE gasket
- Maximize flow rate with proteinaceous or viscous solutions
- Will not shed particles into the filtrate
- Ground glass seal

| Diameter | Funnel Size |        |        |        |        |         |
|----------|-------------|--------|--------|--------|--------|---------|
|          | 15 mL       | 100 mL | 150 mL | 300 mL | 500 mL | 1000 mL |
| 25 mm    | 311300      | -      | 311380 | 311390 | -      | -       |
| 47 mm    | -           | 311580 | -      | 311500 | 311590 | 315110  |
| 90 mm    | -           | -      | -      | -      | -      | 352200  |

### PTFE Support

- PTFE support (0.05 inch / 1.3 mm diameter holes)
- Filter acidic solutions at a higher flow rate
- PTFE support is interchangeable with stainless steel support
- Ground glass seal

| Diameter | Funnel Size |        |        |         |
|----------|-------------|--------|--------|---------|
|          | 100 mL      | 300 mL | 500 mL | 1000 mL |
| 47 mm    | 311680      | 311540 | 311690 | 316110  |



Glass frit, stainless steel support, PTFE support

### All-PTFE Seal

- All-PTFE seal prevents sticking and tearing that can occur when membrane is autoclaved in place in a ground glass assembly
- PTFE flange seals to PTFE coated funnel

| Diameter | Support         | Funnel, 300 mL |
|----------|-----------------|----------------|
| 47 mm    | PTFE            | 351620         |
|          | Stainless Steel | 351600         |



All PTFE seal

## 13 mm Glass Microanalysis Holders

- Filter small volumes of liquid
- Concentrate samples in a small area (1.2 cm<sup>2</sup>)
- **KG 13 AA** features a two-part funnel (13 mL/100 mL) connected by a ground glass joint
- KG 13 available in three different funnel sizes

### SPECIFICATIONS

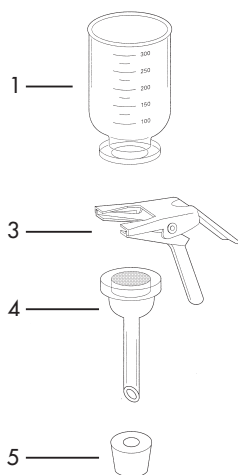
|                                       |  |
|---------------------------------------|--|
| <b>Materials:</b>                     |  |
| Support                               | Sintered glass   |
| Funnel, base                          | Borosilicate glass                                       |
| Stopper                               | Silicone rubber  |
| Clamp                                 | Anodized aluminum  |
| <b>Connection:</b>                    |  |
| Included                              | #5 stopper adapts to standard 125 mL vacuum filter flask |
| Optional                              | #8b stopper adapts to 1 L flask or standard manifold     |
| <b>Pressure:</b>                      | Vacuum   |
| <b>Weight:</b>                        | 0.37 kg (0.88 lb)  |
| <b>Membrane Filter Compatibility:</b> |  |
| Filter size                           | 25 mm  |
| Prefilter size                        | Not Recommended  |
| Filtration area                       | 1.2 cm <sup>2</sup>                                      |

### ORDERING INFORMATION

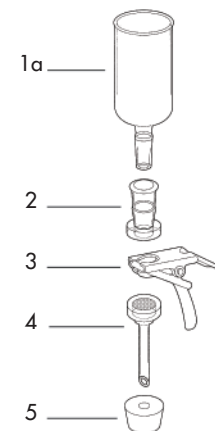
|                 |                |                |                |                 |
|-----------------|----------------|----------------|----------------|-----------------|
| Funnel capacity | 100 mL         | 500 mL         | 1000 mL        | 13/100 mL       |
| <b>Model</b>    | <b>KG 13 A</b> | <b>KG 13 B</b> | <b>KG 13 C</b> | <b>KG 13 AA</b> |
| Catalog No.     | 311000         | 311050         | 311110         | 311100          |

### Replacement Parts

|    |                                |        |
|----|--------------------------------|--------|
| 1  | Funnel, 100 mL                 | 311001 |
| 1  | Funnel, 500 mL                 | 311005 |
| 1  | Funnel, 1000 mL                | 311010 |
| 1a | Funnel, 100 mL with 14/20 Male | 311101 |
| 2  | Microfunnel (13/100 mL)        | 311105 |
| 3  | Clamp                          | 311003 |
| 4  | Base (glass frit)              | 311002 |
| 5  | Stopper, #5                    | 311004 |
| 5  | Stopper, #8B                   | 311008 |



KG 13 \_



KG 13 AA  
(311100)



KG 13 A (311000)



KG 13 AA (311100)



500 mL and 1 L funnels for 13 mm holders are available in complete assemblies or as accessory parts.

## 25 mm Glass Microanalysis Holders

- **Use for filtering small volumes** for biological or particulate contamination
- Available with sintered glass or stainless steel support
- **Use stainless steel screen** when producing ultraclean filtrate or when filtering proteinaceous solutions

### SPECIFICATIONS

|                                       | KG 25  | KGS 25                 |
|---------------------------------------|--|------------------------|
| <b>Materials:</b>                     |  |                        |
| Support                               | Sintered glass   | Stainless steel screen |
| Funnel, base                          | Borosilicate glass                                       |                        |
| Stopper                               | Silicone rubber  |                        |
| Clamp                                 | Anodized aluminum  |                        |
| <b>Connection:</b>                    |  |                        |
| Included                              | #5 stopper adapts to standard 125 mL vacuum filter flask |                        |
| Optional                              | #8b stopper adapts to 1 L flask or standard manifold     |                        |
| <b>Pressure:</b>                      | Vacuum   |                        |
| <b>Weight:</b>                        | 0.19 kg (0.45 lb)  |                        |
| <b>Membrane Filter Compatibility:</b> |  |                        |
| Filter size                           | 25 mm  |                        |
| Prefilter size                        | 16 mm  |                        |
| Filtration area                       | 2.1 cm <sup>2</sup>                                      |                        |

### ORDERING INFORMATION

|                         |              |               |                 |                 |
|-------------------------|--------------|---------------|-----------------|-----------------|
| Funnel capacity         |              | 15 mL         | 150 mL          | 300 mL          |
| Glass frit support      | <b>Model</b> | <b>KG 25</b>  | <b>KG 25 A</b>  | <b>KG 25 B</b>  |
|                         | Catalog No.  | 311200        | 311280          | 311290          |
| Stainless steel support | <b>Model</b> | <b>KGS 25</b> | <b>KGS 25 A</b> | <b>KGS 25 B</b> |
|                         | Catalog No.  | 311300        | 311380          | 311390          |

### Replacement Parts

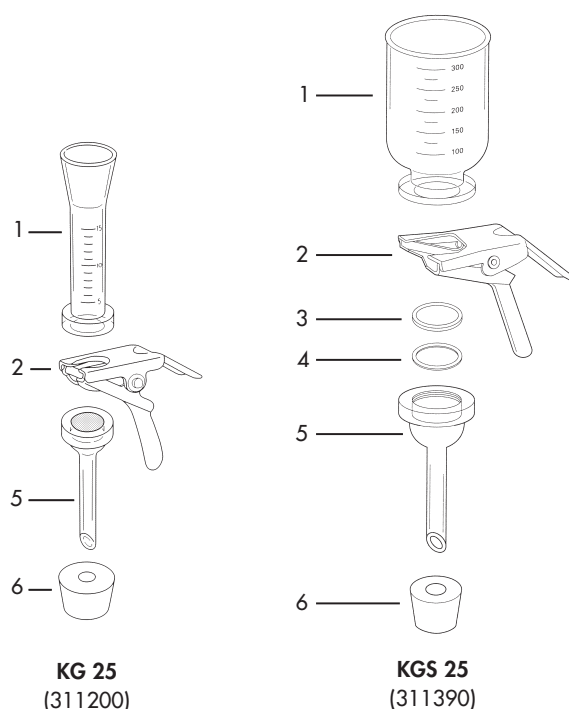
|                            | KG 25  | KGS 25 |
|----------------------------|--------|--------|
| 1 Funnel, 15 mL            | 311201 |        |
| 1 Funnel, 150 mL           | 311208 |        |
| 1 Funnel, 300 mL           | 311209 |        |
| 2 Clamp                    | 311003 |        |
| 3 Screen (stainless steel) | -      | 311304 |
| 4 Gasket (PTFE)            | -      | 311305 |
| 5 Base                     | 311202 | 311302 |
| 6 Stopper, #5              | 311004 |        |
| 6 Stopper, #8b             | 311008 |        |



150 mL and 300 mL funnels for 25 mm holders are available in complete assemblies or as accessory parts.



KG 25 (311200)



## 47 mm Glass Microanalysis Holders

- **Standard size** for microbiology and particulate analysis
- Filter up to 1000 mL
- Available with sintered glass, stainless steel, or PTFE support

### SPECIFICATIONS

|                                       | KG 47  | KGS 47                 | KGT 47 |
|---------------------------------------|--|------------------------|--------|
| <b>Materials:</b>                     |  |                        |        |
| Support                               | Sintered glass   | Stainless steel screen | PTFE   |
| Funnel, base                          | Borosilicate glass   |                        |        |
| Stopper                               | Silicone rubber  |                        |        |
| Clamp                                 | Anodized aluminum  |                        |        |
| <b>Connections</b> (included):        | #8 stopper adapts to standard 1 L vacuum filter flask or vacuum manifold cup |                        |        |
| <b>Pressure:</b>                      | Vacuum   |                        |        |
| <b>Weight:</b>                        | 0.6 kg (1.2 lb)  |                        |        |
| <b>Membrane Filter Compatibility:</b> |  |                        |        |
| Filter size                           | 47 mm  |                        |        |
| Prefilter size                        | 35 mm  |                        |        |
| Filtration area                       | 9.6 cm <sup>2</sup>  |                        |        |

### ORDERING INFORMATION

| Support Type            | Model         | Funnel Capacity |        |        |         |
|-------------------------|---------------|-----------------|--------|--------|---------|
|                         |               | 100 mL          | 300 mL | 500 mL | 1000 mL |
| Glass Frit Support      | <b>KG 47</b>  | A               | -      | B      | C       |
| Glass Frit Support      | <b>KG 47</b>  | 311480          | 311400 | 311490 | 314110  |
| Stainless Steel Support | <b>KGS 47</b> | 311580          | 311500 | 311590 | 315110  |
| PTFE Support            | <b>KGT 47</b> | 311680          | 311540 | 311690 | 316110  |

### Replacement Parts

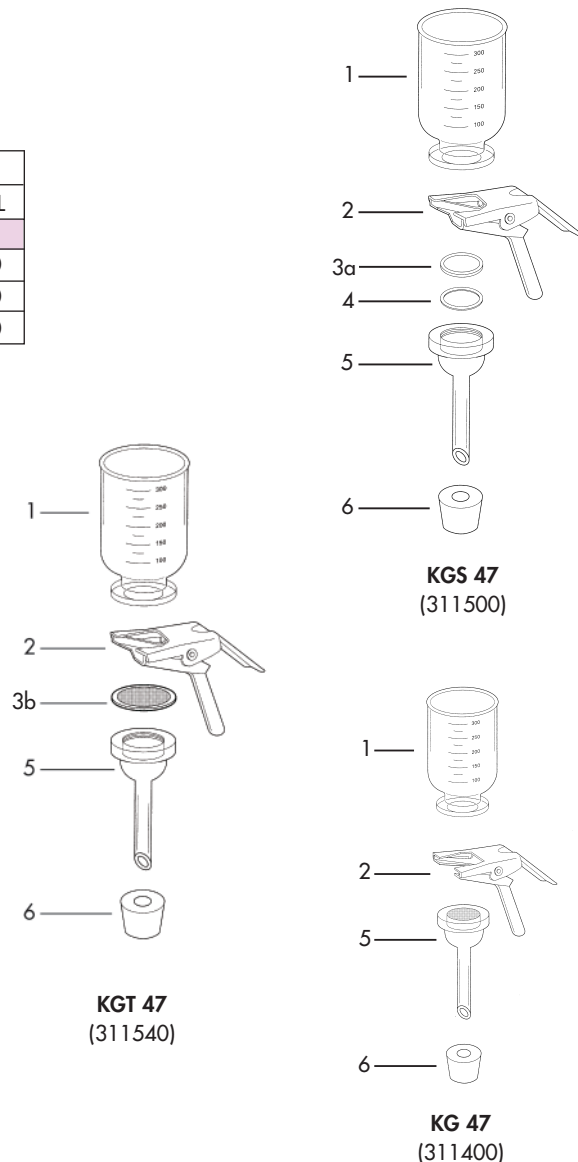
|                             | KG 47  | KGS 47 | KGT 47 |
|-----------------------------|--------|--------|--------|
| 1 Funnel, 100 mL            | 311408 |        |        |
| 1 Funnel, 300 mL            | 311401 |        |        |
| 1 Funnel, 500 mL            | 311409 |        |        |
| 1 Funnel, 1000 mL           | 311410 |        |        |
| 2 Clamp                     | 311403 |        |        |
| 3a Screen (stainless steel) | -      | 311504 | -      |
| 3b PTFE support             | -      | -      | 311604 |
| 4 Gasket (PTFE)             | -      | 311505 | -      |
| 5 Base                      | 311402 | 311502 |        |
| 6 Stopper, #8               | 311404 |        |        |
| - Optional extension (2")   | 311450 |        |        |



311450  
The 2 inch extension provides physical separation of the two filters that set up in series.



47mm Glass Microanalysis Holder



### 47 mm Glass Microanalysis Holders – With All-PTFE Seal

- **Filter sealed between PTFE surfaces:**
  - Bottom of funnel is coated with PTFE
  - PTFE flange covers contact surface on glass base (except for glass frit base)

#### SPECIFICATIONS

As for corresponding basic model (Page 82) with the addition of PTFE coating on bottom of funnel and PTFE flange for KGS 47 TF and KGT 47 TF.

#### ORDERING INFORMATION

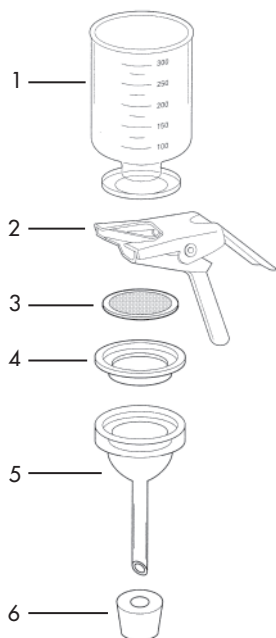
|                         |              |                  |
|-------------------------|--------------|------------------|
| Funnel capacity         | 300 mL       |                  |
| Glass frit support      | <b>Model</b> | <b>KG 47 TF</b>  |
|                         | Catalog No.  | 311600           |
| Stainless steel support | <b>Model</b> | <b>KGS 47 TF</b> |
|                         | Catalog No.  | 351600           |
| PTFE support            | <b>Model</b> | <b>KGT 47 TF</b> |
|                         | Catalog No.  | 351620           |



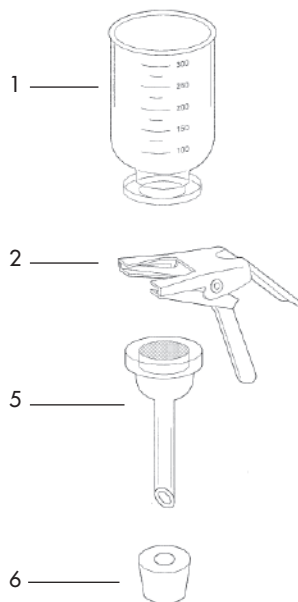
All PTFE seal

#### Replacement Parts

|   |                                 | KG 47 TF | KGS 47 TF | KGT 47T F |
|---|---------------------------------|----------|-----------|-----------|
| 1 | Funnel coated with PTFE, 300 mL | 351601   |           |           |
| 2 | Clamp                           | 311403   |           |           |
| 3 | Screen (stainless steel)        | -        | 311504    | -         |
| 3 | PTFE support                    | -        | -         | 311604    |
| 4 | Flange (PTFE)                   | -        | 351603    | 351603    |
| 5 | Base                            | 311402   | 311602    |           |
| 6 | Stopper, #8                     | 311404   |           |           |



KGS 47 TF (351600)  
KGT 47 TF (351620)



KG 47 TF  
(311600)

## 47 mm Glass Microanalysis Holder – Sterility Test Unit

- **Complete filter assembly for sterility testing** of antibiotics and pharmaceuticals
- **Use with the sterility test manifold** (Page 94)

### SPECIFICATIONS

As for corresponding basic model (Page 82) with additional components as listed below.

### ORDERING INFORMATION

|                 |               |
|-----------------|---------------|
| Funnel capacity | 300 mL        |
| <b>Model</b>    | <b>STU 1A</b> |
| Catalog No.     | 314100        |

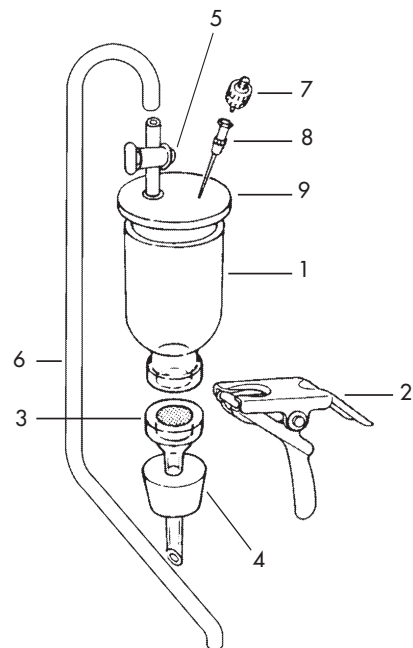
### Replacement Parts

|   |  |        |
|---|--|--------|
| 1 | Funnel, 300 mL                             | 311401 |
| 2 | Clamp                                      | 311403 |
| 3 | Base (glass frit)                          | 311402 |
| 4 | #8 Stopper                                 | 311404 |
| 5 | Stopcock                                   | 313902 |
| 6 | Silicone tubing 53 cm (21") 1/4"ID, 3/8"OD | 313903 |
| 7 | KS 13 filter holder*                       | 301000 |
| 8 | Injector needle                            | 313901 |
| 9 | Silicone cover                             | 313904 |

\* 13 mm Hydrophobic PTFE membrane filter is recommended (Page 11).



Sterility test unit



**STU 1A**  
(314100)



## 90 mm Glass Microanalysis Holders

- **Larger filtration** area for filtering larger volumes (>500 ml)
- **Use for viscous samples** or those with a heavy particle or bioburden that would clog a 47 mm filter
- **Available with sintered glass or stainless steel support**

### SPECIFICATIONS

|                                       | KG 90  | KGS 90                 |
|---------------------------------------|--|------------------------|
| <b>Materials:</b>                     |  |                        |
| Support                               | Sintered glass   | Stainless steel screen |
| Funnel, base                          | Borosilicate glass   |                        |
| Stopper                               | Silicone rubber  |                        |
| Clamp                                 | Anodized aluminum  |                        |
| <b>Connection (Included):</b>         | #8 stopper adapts to standard 1 L vacuum filter flask or vacuum manifold cup |                        |
| <b>Pressure:</b>                      | Vacuum   |                        |
| <b>Weight:</b>                        | 1.2 kg (2.82 lb)   |                        |
| <b>Membrane Filter Compatibility:</b> |  |                        |
| Filter size                           | 90 mm  |                        |
| Prefilter size                        | 70 mm  |                        |
| Filtration area                       | 43 cm <sup>2</sup>   |                        |



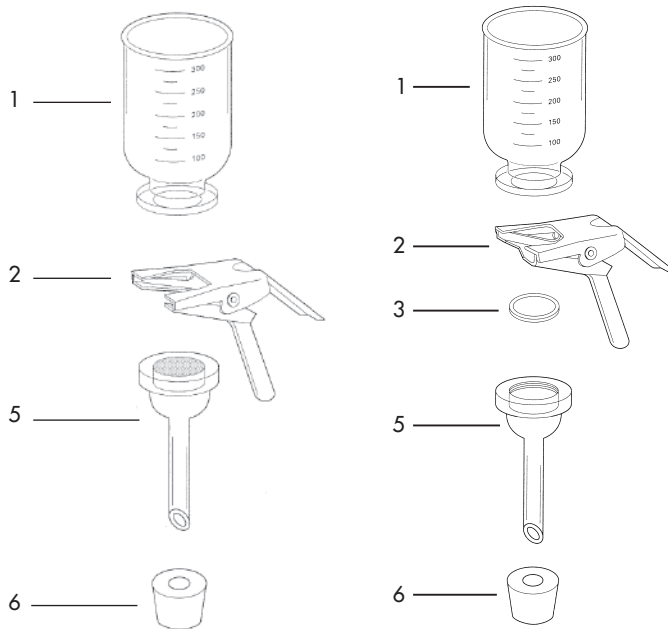
KG 90 (352100)

### ORDERING INFORMATION

|                         |                                  |        |
|-------------------------|----------------------------------|--------|
| Funnel capacity         | 1000 mL graduated (1100 mL max.) |        |
| Glass frit support      | <b>KG 90</b>                     | 352100 |
| Stainless steel support | <b>KGS 90</b>                    | 352200 |

### Replacement Parts

|                            | KG 90  | KGS 90 |
|----------------------------|--------|--------|
| 1 Funnel, 1000 mL          | 352101 |        |
| 2 Clamp                    | 352103 |        |
| 3 Screen (stainless steel) | -      | 352204 |
| 5 Base                     | 352102 | 352202 |
| 6 #8 Stopper               | 311404 |        |



KG 90  
(352100)

KGS 90  
(352200)

## Filter Flasks and Stoppers

- Borosilicate filter flasks and silicone rubber stoppers are compatible with Advantec filter holders
- Use flasks to collect filtrate or to act as a trap to prevent liquid from damaging pump or vacuum line
- #5 and #8b stoppers adapt 13 mm, 25 mm and KP 47 filter holders to 125 mL (#5) and 1 L (#8b) flasks
- #8 stopper adapts 47 mm (except KP 47) and 90 mm filter holders to the 1 L flask
- Side arm connection 3/8"
- Flasks with ground glass joint fit holders with female joint (GFA, P/FC 2)

### Borosilicate Glass Filter Flasks

| Volume | Opening                         | Catalog No. |
|--------|---------------------------------|-------------|
| 125 mL | Fits #5 stopper                 | 311230      |
| 1 L    | Fits #8 stopper                 | 311430      |
| 250 mL | 19/22 male joint (ground glass) | 311225      |
| 1 L    | 40/35 male joint (ground glass) | 311425      |
| 2 L    | 40/35 male joint (ground glass) | 311426      |

### Silicone Rubber Stoppers

| Size | Catalog No. |
|------|-------------|
| #5   | 311004      |
| #8b  | 311008      |
| #8   | 311404      |



Flasks and stoppers compatible with Advantec filter holders

## All-Glass Filtration Assemblies

- **All-glass design** restricts contact with reactive surfaces such as steel or rubber to minimize contamination of sample or filtrate
- **Standard 25 and 47 mm filtration funnels** mount on filtration flask using a ground glass joint
- Outlet of support base drip tube is positioned below the side arm connection to prevent sample aspiration into vacuum line
- **All wetted surfaces are borosilicate glass** with the exception of stainless steel and PTFE support options

## SPECIFICATIONS

|   | 25 mm Holder                                    | 47 mm Holder        |
|---|---|---------------------|
| <b>Materials:</b>                             |   |                     |
| Funnel, base unit and flask                   | Borosilicate glass                              |                     |
| Support                                       | Sintered glass, stainless steel screen, or PTFE |                     |
| <b>Connections:</b>                           |   |                     |
| Ground glass joint                            | 14/20 female                                    | 40/35 female        |
| Side arm                                      | 6 mm (1 <sup>9</sup> /22 inch)                  | 6 mm (3/8 inch)     |
| <b>Capacity:</b>                              |   |                     |
| Funnel  | 15 mL   | 300 mL              |
| Receiver flask                                | 250 mL  | 1 L                 |
| <b>Membrane filter size</b>                   | 25 mm   | 47 mm               |
| <b>Prefilter size</b> (if used with membrane) | 16 mm   | 35 mm               |
| <b>Filtration area</b>                        | 2.1 cm <sup>2</sup>                             | 9.6 cm <sup>2</sup> |



GFA 25 (311220)

## ORDERING INFORMATION

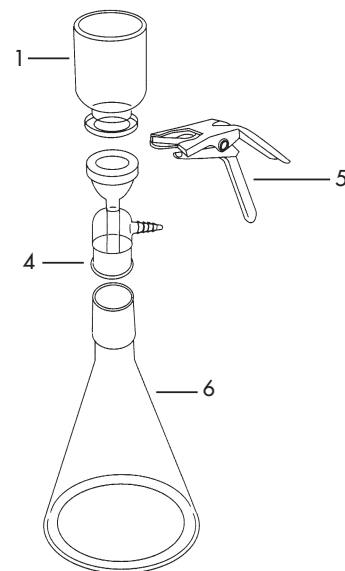
|                 | 25 mm Holder  |             | 47 mm Holder  |             |
|-----------------|---------------|-------------|---------------|-------------|
| Support type:   | Model         | Catalog No. | Model         | Catalog No. |
| Glass frit      | <b>GFA 25</b> | 311220      | <b>GFA 47</b> | 311420      |
| Stainless steel | <b>GFS 25</b> | 311320      | <b>GFS 47</b> | 311520      |
| PTFE            | -             | -           | <b>GFT 47</b> | 311620      |

## Replacement Parts

|             |                | 25 mm Holder |        | 47 mm Holder |        |        |
|-------------|----------------|--------------|--------|--------------|--------|--------|
| Model       |                | GFA 25       | GFS 25 | GFA 47       | GFS 47 | GFT 47 |
| Catalog No. |                | 311220       | 311320 | 311420       | 311520 | 311620 |
| 1           | Funnel         | 311201       |        | 311401       |        |        |
| -           | Support        | -            | 311304 | -            | 311504 | 311604 |
| -           | PTFE Gasket    | -            | 311305 | -            | 311505 | -      |
| 4           | Support base   | 311222       | 311322 | 311422       | 311522 |        |
| 5           | Clamp          | 311003       |        | 311403       |        |        |
| 6           | Receiver flask | 311225       |        | 311425       |        |        |

## Optional Accessories

|                        | 25 mm Holder | 47 mm Holder |
|------------------------|--------------|--------------|
| Funnel, 100 mL         | -            | 311408       |
| Funnel, 150 mL         | 311208       | -            |
| Funnel, 300 mL         | 311209       | -            |
| Funnel, 500 mL beveled | -            | 311409       |
| Funnel, 1 L graduated  | -            | 311410       |
| Receiver flask, 2 L    | -            | 311426       |



GFA

## Phase/Fraction Collectors

- **Collect aliquots of filtrate** during the filtration process using the 2-way Y bore PTFE valve
- **Prevents venting** of hazardous sample or solvents to atmosphere
- **Collect multiple samples** with additional receiver sample tubes
- **Two mounting options:** P/FC 1 mounts on standard manifold or 1 L flask using a #8 stopper, P/FC 2 has female 40/35 joint to mount on an extraction manifold (Page 93) or 1 L flask
- Available with sintered glass, stainless steel, or PTFE support

## SPECIFICATIONS

|                                       | P/FC 1  | P/FC 2                   |
|---------------------------------------|---|--------------------------|
| <b>Materials:</b>                     |   |                          |
| Funnel, base unit, and receiver tube  | Borosilicate glass                              |                          |
| Support                               | Sintered glass, stainless steel screen, or PTFE |                          |
| <b>Connections:</b>                   |   |                          |
| Base to outlet                        | #8 Stopper                                      | 40/35 ground glass joint |
| Alternate outlet to receiver tube     | Ground glass joint                              |                          |
| <b>Capacity:</b>                      |   |                          |
| Funnel                                | 300 mL  |                          |
| <b>Membrane Filter Compatibility:</b> |   |                          |
| Membrane filter size                  | 47 mm   |                          |
| Prefilter size                        | 35 mm   |                          |
| Filtration area                       | 9.6 cm <sup>2</sup>                             |                          |

## ORDERING INFORMATION

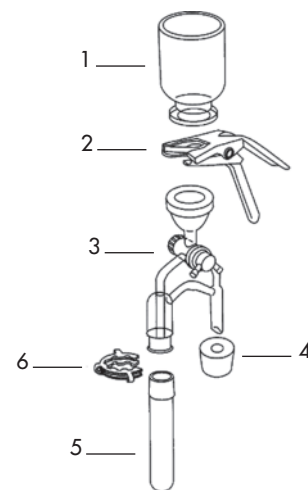
| Model                   | P/FC 1     | P/FC 2            |
|-------------------------|------------|-------------------|
| Outlet type             | #8 Stopper | 40/35 glass joint |
| Glass frit support      | 311700     | 311800            |
| Stainless steel support | 311750     | 311850            |
| PTFE support            | 311760     | 311860            |

## Replacement Parts

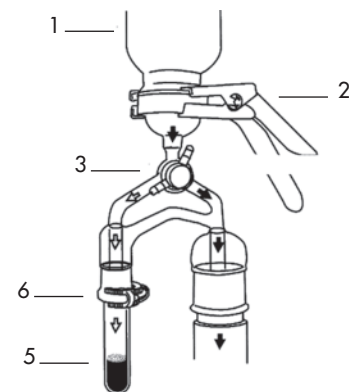
| Model                                 | P/FC 1     | P/FC 2            |
|---------------------------------------|------------|-------------------|
| Outlet type                           | #8 Stopper | 40/35 glass joint |
| 1 Funnel                              | 311401     |                   |
| 2 Clamp                               | 311403     |                   |
| 3 Base assembly – glass frit          | 311702     | 311802            |
| 3 Base assembly – SS or PTFE support  | 311752     | 311852            |
| - Support – stainless steel screen    | 311504     |                   |
| - Support – PTFE                      | 311604     |                   |
| - PTFE gasket (for stainless support) | 311505     |                   |
| 4 #8 Stopper                          | 311404     | -                 |
| 5 Receiver tube                       | 311705     |                   |
| 6 Clip                                | 311706     |                   |



P/FC 2 (311800)



P/FC 1



P/FC 2

## Stainless Steel Filter Holders – KSF 47

- **Nonbreakable stainless steel unit** may be flame sterilized to sanitize the holder between samplings
- **Set pins and a locking nut** on the funnel to help prevent twisting and tearing of the membrane
- **Autoclavable** with membrane in place

### SPECIFICATIONS

|                                       | KSF 47   |
|---------------------------------------|--|
| <b>Materials:</b>                     |  |
| Support                               | Type 304 stainless steel screen  |
| Funnel, base                          | Type 304 stainless steel   |
| Stopper                               | Silicone rubber  |
| Gasket                                | PTFE   |
| <b>Connections (included):</b>        | #8 stopper adapts to standard 1 L vacuum filter flask or vacuum manifold cup |
| <b>Capacity:</b>                      |  |
| Funnel                                | 500 mL   |
| <b>Pressure:</b>                      | Vacuum (21 in Hg recommended)  |
| <b>Weight:</b>                        | 0.5 kg (1.17 lb)   |
| <b>Membrane Filter Compatibility:</b> |  |
| Filter size                           | 47 mm  |
| Prefilter size                        | 35 mm  |
| Filtration area                       | 9.3 cm <sup>2</sup>  |



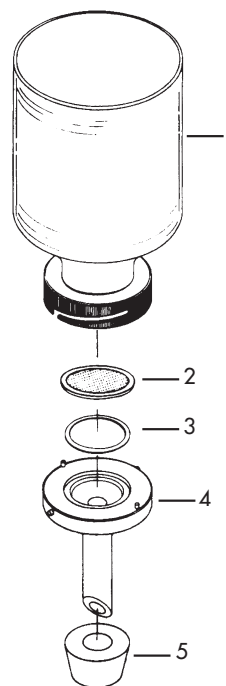
KSF 47 (352600)

### ORDERING INFORMATION

|              |               |
|--------------|---------------|
| <b>Model</b> | <b>KSF 47</b> |
| Catalog No.  | 352600        |

### Replacement Parts

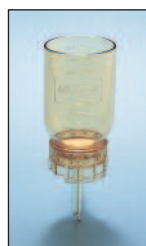
|   |                   | KSF 47 |
|---|-------------------|--------|
| 1 | Funnel            | 352601 |
| 2 | SS support screen | 311504 |
| 3 | PTFE gasket       | 311505 |
| 4 | Base              | 312602 |
| 5 | #8 Stopper        | 311404 |



KSF 47  
(352600)

## Polysulfone Filter Holders

- **Can be used aseptically**
- **Recessed filter support** provides sufficient clearance so that the membrane will not twist or tear when the funnel is secured
- **Graduated funnel** in 300 mL (standard) or 500 mL (wide mouth) capacities
- **Receiver flask** (KP 47 S) is interchangeable with all other models
- **Funnel cover** can be vented aseptically using disposable syringe filter (13JP050AN, see page 15)



KP 47 H  
(501020)



KP 47 U  
(501030)



KP 47 W  
(501050)



KP 47 S  
(501000)

## SPECIFICATIONS

|                                       | KP 47 H   | KP 47 U            | KP 47 W            | KP 47 S            |
|---------------------------------------|---|--------------------|--------------------|--------------------|
| <b>Materials:</b>                     |   |                    |                    |                    |
| Support                               | Polypropylene   |                    |                    |                    |
| Funnel and base                       | Polysulfone   |                    |                    |                    |
| Receiver flask                        | -   | -                  | -                  | Polysulfone        |
| Stopper, O-rings                      | Silicone rubber   |                    |                    |                    |
| Caps                                  | -   | Silicone rubber    | -                  | Silicone rubber    |
| Vacuum adapter                        | -   | -                  | -                  | Polypropylene      |
| <b>Connection:</b>                    |   |                    |                    |                    |
| Outlet                                | #8b stopper adapts to standard 1 L vacuum filter flask or vacuum manifold cup; KP 47 S screws onto receiver flask |                    |                    |                    |
| Receiving flask port                  | -   | -                  | -                  | Luer slip          |
| Funnel cover port                     | -   | Luer slip          | -                  | Luer slip          |
| <b>Capacity:</b>                      |   |                    |                    |                    |
| Funnel                                | 300 mL  | 300 mL             | 500 mL             | 300 mL             |
| Receiver                              | -   | -                  | -                  | 300 mL             |
| <b>Pressure:</b>                      |   |                    |                    |                    |
| Vacuum (25 in Hg maximum)             |   |                    |                    |                    |
| <b>Weight:</b>                        | 0.15 Kg (0.33 lb.)  | 0.16 Kg (0.36 lb.) | 0.15 Kg (0.33 lb.) | 0.26 Kg (0.58 lb.) |
| <b>Membrane Filter Compatibility:</b> |   |                    |                    |                    |
| Filter size                           | 47 mm   |                    |                    |                    |
| Prefilter size                        | 41 mm   |                    |                    |                    |
| Filtration area                       | 13.5 cm <sup>2</sup>  |                    |                    |                    |

## ORDERING INFORMATION

| Model   | Description                          | Main Components               | Catalog No. |
|---------|--------------------------------------|-------------------------------|-------------|
| KP 47 H | Polysulfone Filter Holder            | Funnel, base                  | 501020      |
| KP 47 U | Polysulfone Aseptic Filter Unit      | Funnel, base, cover           | 501030      |
| KP 47 W | Wide Mouth Polysulfone Filter Holder | Funnel, base                  | 501050      |
| KP 47 S | Polysulfone Aseptic Filter System    | Funnel, base, cover, receiver | 501000      |

**Replacement Parts – Funnel assembly**

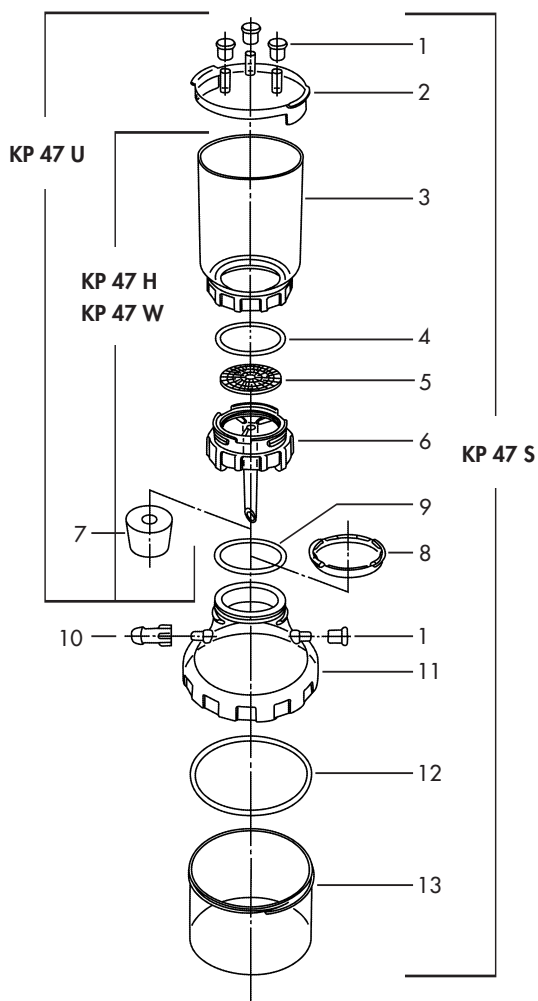
| Model |  | KP 47 H | KP 47 U | KP 47 W | KP 47 S |
|-------|--|---------|---------|---------|---------|
|       | Catalog No.  | 501020  | 501030  | 501050  | 501000  |
| 1     | Gum rubber cap (1)   | -       | 501010  | -       | 501010  |
| 2     | Funnel cover   | -       | 501001  | -       | 501001  |
| 3     | Funnel   | 501002  |         | 501102  | 501002  |
| 4     | Funnel O-ring  | 501008  |         |         |         |
| 5     | Filter support   | 501004  |         |         |         |
| 6     | Base   | 501003  |         |         |         |
| 7     | #8b Stopper  | 311008  |         |         |         |
| -     | Cap and filter kit:<br>5 caps (501010) and<br>1 filter (13JPO50AN) | KP47KIT | -       | KP47KIT | -       |

**Replacement Parts – Receiver flask**

| Model |                         | KP 47 S |
|-------|-------------------------|---------|
| 8     | Receiver cover          | 501005  |
| 9     | Receiver adapter O-ring | 501009  |
| 10    | Vacuum adapter          | 501013  |
| 11    | Receiver adapter        | 501007  |
| 12    | Receiver O-ring         | 501015  |
| 13    | Receiver flask          | 501006  |

**Optional Accessories**

|    |                              |        |
|----|------------------------------|--------|
| 4  | Funnel O-ring, FPM           | 501011 |
| 9  | Receiver adapter O-ring, FPM | 501012 |
| 12 | Receiver O-ring, FPM         | 501016 |



## PVC Vacuum Manifold – Standard Cup

- **Lightweight**
- **Resistant to acids**
- **Standard cup** accepts a #8 and #8b stopper to adapt microanalysis units and other devices
- **2-way** valve with PTFE stopcock in PVC body
- Not autoclavable

### SPECIFICATIONS

|                     |  |
|---------------------|--|
| <b>Materials:</b>   |  |
| Body and branches   | Polyvinylchloride (PVC)  |
| Valves              | PTFE stopcock, PVC body  |
| <b>Connections:</b> |  |
| Outlet              | 1/4" male NPT to hose barb fitting connects main manifold to 3/8" i.d. vacuum tubing |
| Standard cup        | Accepts #8 and #8b stopper   |
| <b>Temperature:</b> |  |
| Maximum             | 60°C (140°F)   |



KMP 6 (313600)  
KMP 3 (313400)

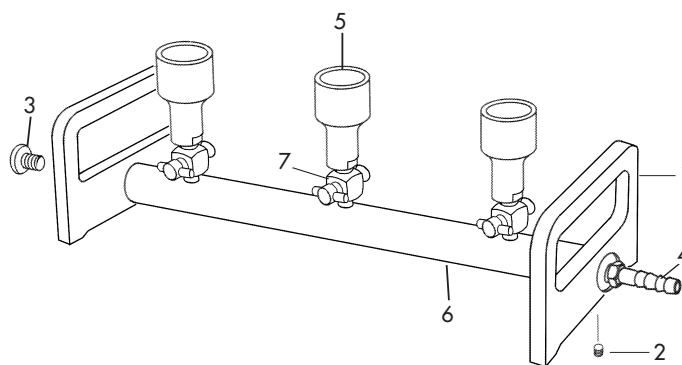
| Dimensions: | L x W x H  |                  | Distance between stations<br>(center to center) |    | Weight |     |
|-------------|--|------------------|---|----|--------|-----|
|             | in   | cm               | in  | cm | lb     | kg  |
| 3 station   | 17 <sup>3</sup> / <sub>4</sub> x 4 <sup>3</sup> / <sub>4</sub> x 7 | 45.1 x 12 x 17.8 | 5 <sup>1</sup> / <sub>2</sub>                   | 14 | 3.3    | 1.5 |
| 6 station   | 34 <sup>1</sup> / <sub>2</sub> x 4 <sup>3</sup> / <sub>4</sub> x 7 | 87.6 x 12 x 17.8 | 4 <sup>3</sup> / <sub>4</sub>                   | 12 | 5.5    | 2.5 |

### ORDERING INFORMATION

|           |              | Standard cup |
|-----------|--------------|--------------|
| 3 station | <b>KMP 3</b> | 313400       |
| 6 station | <b>KMP 6</b> | 313600       |

### Replacement Parts

|   |                          |        |
|---|--------------------------|--------|
| 1 | Handle                   | 313401 |
| 2 | Handle set screw         | 313015 |
| 3 | Pipe plug                | 313412 |
| 4 | PVC Hose barb            | 373411 |
| 5 | Branch (Standard cup)    | 313410 |
| 6 | Main manifold:           |        |
|   | 3 station                | 313403 |
|   | 6 station                | 313603 |
| 7 | Stopcock assembly, 2-way | 313430 |



KMP 3  
(313400)



### PVC Extraction Manifold – Exterior Taper

- **Exterior taper** accepts a 40/35 female joint
- **3-way valve** with luer slip vent port accepts disposable syringe filters (see page 15)
- **Lightweight and resistant to acids**
- **Broad base** for extra stability
- **Ideal for EPA Method 1664** oil and grease analysis
- Not autoclavable, can be sanitized with ethanol or formaldehyde



KMX 3 (373330)

### SPECIFICATIONS

|                     |  |
|---------------------|--|
| <b>Materials:</b>   |  |
| Body and branches   | Polyvinylchloride (PVC)  |
| Valves              | PTFE stopcock, PVC body  |
| <b>Connections:</b> |  |
| Outlet              | 1/4" male NPT to hose barb fitting connects main manifold to 3/8" ID vacuum tubing |
| Exterior taper      | 40/35 male joint   |
| <b>Temperature:</b> |  |
| Maximum             | 60°C (140°F)   |

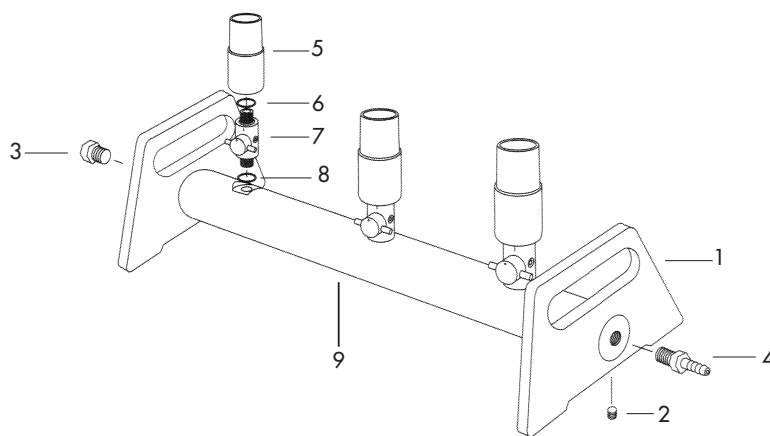
| Dimensions: | L x W x H  |                    | Distance between stations (center to center) |      | Weight |     |
|-------------|--|--------------------|--|------|--------|-----|
|             | in   | cm                 | in   | cm   | lb     | kg  |
| Single      | 10 x 6 <sup>5</sup> / <sub>8</sub> x 8                             | 25.4 x 16.8 x 20.3 | -  | -    | 4      | 1.8 |
| 3 station   | 21 <sup>1</sup> / <sub>2</sub> x 6 <sup>5</sup> / <sub>8</sub> x 8 | 54.6 x 16.8 x 20.3 | 6 <sup>1</sup> / <sub>2</sub>                | 16.5 | 6      | 2.7 |

### ORDERING INFORMATION

|           |              | Exterior Taper |
|-----------|--------------|----------------|
| Single    | <b>KMX 1</b> | 373130         |
| 3 station | <b>KMX 3</b> | 373330         |

### Replacement Parts

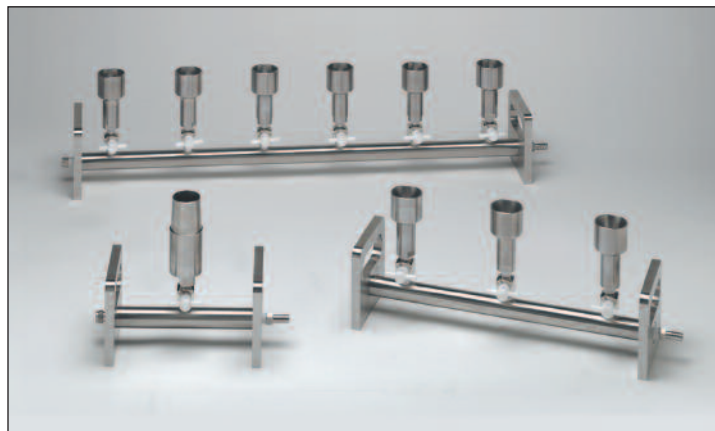
|   |                          |        |
|---|--------------------------|--------|
| 1 | Handle                   | 373401 |
| 2 | Socket cap screw         | 373015 |
| 3 | Pipe plug                | 373412 |
| 4 | PVC Hose barb            | 373411 |
| 5 | Branch (Male taper)      | 713010 |
| 6 | Branch O-ring (EPR)      | 373017 |
| 7 | Stopcock assembly, 3-way | 373430 |
| 8 | Branch Gasket (Buna)     | 373018 |
| 9 | Main manifold:           |        |
|   | 1 station                | 373103 |
|   | 3 station                | 373303 |



KMX 3 (373330)

## Stainless Steel Vacuum Manifolds

- **Autoclavable**
- **2-way or 3-way valve available**, use a 3-way valve when the manifold is used under closed conditions and must be vented to atmosphere without breaking the vacuum connection. 3-way valve vent is female luer slip, accepts standard disposable syringe filter (Page 15) or stainless steel syringe filter holder (KS 13, page 99)
- **Standard cup** accepts a #8 stopper to adapt microanalysis units and other devices
- **Exterior taper** accepts a 40/35 female joint
- **Sterility Test Manifold** features rear mounted flushing manifold for use in USP bacteria retentive method



Vacuum Filter Manifold Family

## SPECIFICATIONS

| Materials:        |  |
|-------------------|--|
| Body and branches | Type 304 stainless steel   |
| Valves            | PTFE stopcock, chrome plated brass body  |
| Connections:      |  |
| Outlet            | 1/4" male NPT to hose barb fitting connects main manifold to 3/8" ID vacuum tubing |
| Standard cup      | Accepts #8 and #8b stopper   |
| Exterior taper    | 40/35 male joint   |

### Standard Cup

| Dimensions: | L x W x H  |                  | Distance between stations<br>(center to center) |    | Weight |     |
|-------------|--|------------------|---|----|--------|-----|
|             | in   | cm               | in  | cm | lb     | kg  |
| Single      | 8 x 4 <sup>3</sup> / <sub>4</sub> x 7                              | 20.3 x 12 x 17.8 | -   | -  | 5.5    | 2.5 |
| 3 station   | 18 x 4 <sup>3</sup> / <sub>4</sub> x 7                             | 45.7 x 12 x 17.8 | 5 <sup>1</sup> / <sub>2</sub>                   | 14 | 9.9    | 4.5 |
| 6 station   | 28 <sup>1</sup> / <sub>2</sub> x 4 <sup>3</sup> / <sub>4</sub> x 7 | 72.4 x 12 x 17.8 | 4 <sup>3</sup> / <sub>4</sub>                   | 12 | 14.3   | 6.5 |



Standard branch accepts a #8 or #8b stopper, 2-way valve.

### Exterior Taper

| Dimensions: | L x W x H  |                  | Distance between stations<br>(center to center) |    | Weight |     |
|-------------|--|------------------|---|----|--------|-----|
|             | in   | cm               | in  | cm | lb     | kg  |
| Single      | 8 x 4 <sup>3</sup> / <sub>4</sub> x 8                              | 20.3 x 12 x 20.3 | -   | -  | 5.5    | 2.5 |
| 3 station   | 18 x 4 <sup>3</sup> / <sub>4</sub> x 8                             | 45.7 x 12 x 20.3 | 5 <sup>1</sup> / <sub>2</sub>                   | 14 | 10.4   | 4.7 |
| 6 station   | 28 <sup>1</sup> / <sub>2</sub> x 4 <sup>3</sup> / <sub>4</sub> x 8 | 72.4 x 12 x 20.3 | 4 <sup>3</sup> / <sub>4</sub>                   | 12 | 16.9   | 7.7 |



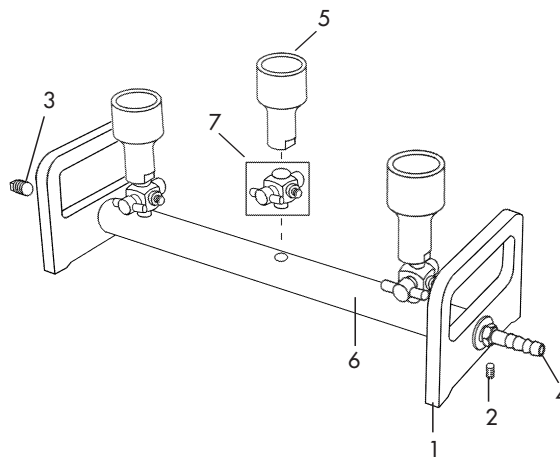
Exterior taper for a 40/35 glass joint. 3-way valve.

## ORDERING INFORMATION

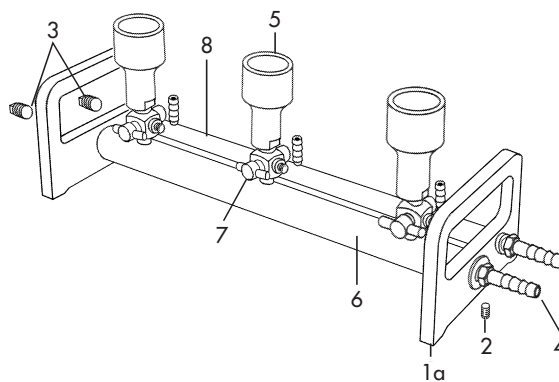
|           | Standard cup           |                        | Exterior taper             |                            | Sterility Test<br>(standard cup) |
|-----------|------------------------|------------------------|----------------------------|----------------------------|----------------------------------|
|           | 2-way                  | 3-way                  | 2-way                      | 3-way                      | 3-way                            |
| Single    | <b>SS 2X</b><br>351120 | <b>SS 3X</b><br>351130 | <b>SS SPE/2</b><br>361120  | <b>SS SPE/3</b><br>361130  | -<br>-                           |
| 3 station | <b>KM3N</b><br>353100  | <b>KM3NV</b><br>353130 | <b>KM3N XT/2</b><br>363120 | <b>KM3N XT/3</b><br>363130 | <b>KM3</b><br>313000             |
| 6 station | <b>KM6N</b><br>353300  | <b>KM6NV</b><br>353330 | <b>KM6N XT/2</b><br>363320 | <b>KM6N XT/3</b><br>363330 | <b>KM6</b><br>313200             |

## Replacement Parts

|    |                                     |        |
|----|-------------------------------------|--------|
| 1  | Handle standard                     | 313101 |
| 1a | Handle (sterility test)             | 313001 |
| 2  | Handle set screw                    | 313015 |
| 3  | Pipe plug                           | 313012 |
| 4  | Hose barb                           | 304507 |
| 5  | Branch:                             |        |
|    | Standard cup                        | 313010 |
|    | Exterior taper                      | 613010 |
| 6  | Main manifold:                      |        |
|    | Single                              | 361103 |
|    | 3 station                           | 313003 |
|    | 6 station                           | 313203 |
| 7  | Stopcock assembly:                  |        |
|    | 2-way                               | 613005 |
|    | 3-way                               | 313005 |
| 8  | Flushing manifold (sterility test): |        |
|    | 3 station                           | 313004 |
|    | 6 station                           | 313204 |



**KM3NV**  
(353130)



**KM3**  
(313000)

## Vacuum Pressure Pump

- Maintains continuous vacuum for filtration
- Also can be used for positive pressure filtration (<60 psi)
- Oil free operation minimizes aerosol contamination
- Quiet operation
- Easy to maintain
- Portable compact design

## SPECIFICATIONS

|                           |  |
|---------------------------|--|
| <b>Materials:</b>         |  |
| Wetted parts              | Aluminum, stainless steel, and Nordell Normax                                |
| Valves                    | Reed type  |
| Power cord                | 6' long, 3-wire  |
| <b>Connections:</b>       |  |
| Inlet and outlet ports    | 1/4" NPTF to hose barb fitting connects vacuum pump to 3/8" ID vacuum tubing |
| Power requirements        | 115 V, 60 Hz, 4.2 A or 220 V, 50 Hz, 1.9 A                                   |
| <b>Pressure:</b>          |  |
| Maximum pressure          | 0.41 MPa (60 psi)  |
| Maximum vacuum            | 81 kPa (24Hg") from atm  |
| <b>Temperature:</b>       |  |
| Maximum inlet             | 37.8°C (100°F)   |
| <b>Free air capacity:</b> | 34 L/min (1.2 cfm)   |
| <b>Weight:</b>            | 9.1 Kg (20 lb)   |



VP-24 Vacuum Pressure Pump

## ORDERING INFORMATION

| Model | Description                 | Catalog No. |
|-------|-----------------------------|-------------|
| VP-24 | Vacuum pressure pump, 115 V | 800800      |
|       | Vacuum pressure pump, 220 V | 800801      |

## Replacement Parts

| Service kit:   | Catalog No. |
|--|-------------|
| Replacement head gasket, filter, muffler elements, leaf valves, screws and valve retainers | 800810      |
| Vacuum gauge and regulator assembly  | 800820      |
| Pressure gauge and regulator assembly  | 800830      |
| Hose barb 3/8"   | 800840      |