VACUUM FILTRATION

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 MFS 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.

RECOMMENDED

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
Recommended Models				
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-Teflon seal	-	-	KGT 47 TF	-
All-glass assembly	-	GFA 25 GFS 25	GFA 47 GFS 47 GFT 47	-
Phase/Fraction collector	-	-	P/FC 1 P/FC 2	-
Polysulfone	-	-	KP 47	-
Stainless steel	-	-	KSF 47	-
Filter Specifications				
Membrane diameter	25 mm	25 mm	47 mm	90 mm
Filtration area	1.2 cm^2	2.1 cm^2	9.6 cm^2 *	43.2 cm^2

* 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	-	-	311005	311010
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-Teflon Seal (PTFE)

- All-Teflon (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	Teflon (PTFE)	351620
	Stainless Steel	351600

All Teflon seal

13 mm Glass Microanalysis Holders

- **Filter small volumes** of liquid
- **Concentrate samples** in a small area (1.2 cm^2)
- **KG 13 AA features a two-part funnel** (15 ml/100 ml) connected by a ground glass joint
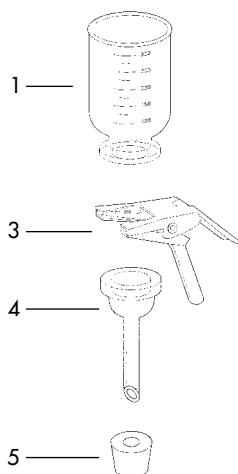- KG 13 available in three different funnel sizes

SPECIFICATIONS

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

KG 13

KG 13 AA

ORDERING INFORMATION

Funnel capacity	100 ml	500 ml	1000 ml	15/100 ml
Model	**KG 13 A**	**KG 13 B**	**KG 13 C**	**KG 13 AA**
Catalog No.	311000	311050	311110	311100

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

Replacement Parts

1	Funnel, 100 ml	311001
1	Funnel, 500 ml	311005
1	Funnel, 1000 ml	311010
2	Microfunnel (15/100 ml)	311105
3	Clamp	311003
4	Base (glass frit)	311002
5	Stopper, #5	311004
5	Stopper, #8B	311008

KG 13

KG 13 AA

25 mm Glass Microanalysis Holders

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

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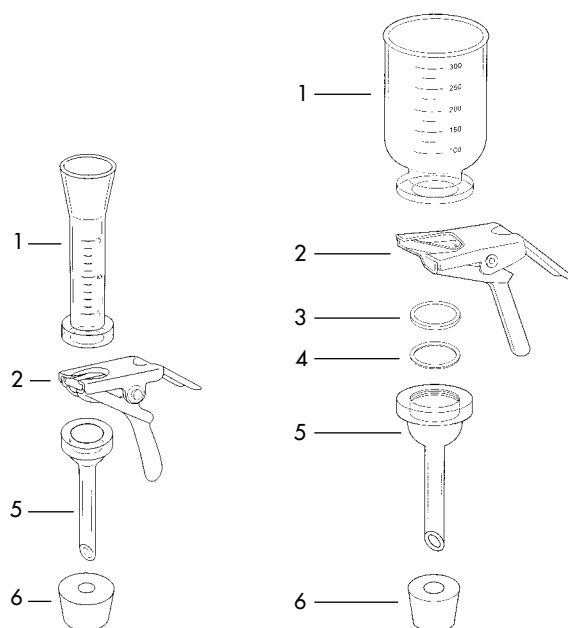
SPECIFICATIONS

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

ORDERING INFORMATION

Funnel capacity		15 ml	150 ml	300 ml
Glass frit support	**Model**	**KG 25**	**KG 25 A**	**KG 25 B**
	Catalog No.	311200	311280	311290
Stainless steel support	**Model**	**KGS 25**	**KGS 25 A**	**KGS 25 B**
	Catalog No.	311300	311380	311390

KG 25

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	

KG 25

KGS 25

VACUUM FILTRATION

47 mm Glass Microanalysis Holders

- **Standard size** for microbiology and particulate analysis
- Filter up to 500 ml
- Available with sintered glass, stainless steel, or PTFE support

SPECIFICATIONS

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

Glass microanalysis holder – 47 mm

ORDERING INFORMATION

Support type	Model	Funnel capacity			
		100 ml	300 ml	500 ml	1000 ml
Glass frit support	KG 47	311400	311480	311490	314110
Stainless steel support	KGS 47	311500	311580	311590	315110
PTFE support	KGT 47	311540	311680	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		
3	Screen (stainless steel)	-	311504	-
4	Gasket (PTFE)	-	311505	-
3	PTFE support	-	-	311604
5	Base	311402	311502	
6	Stopper, #8	311404		
-	Optional extension (2")	311450		

KGS 47

KGT 47

KG 47
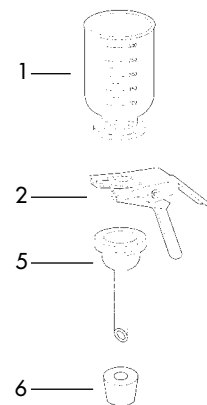

The 2 inch extension provides physical separation of the two filters that set up in series.
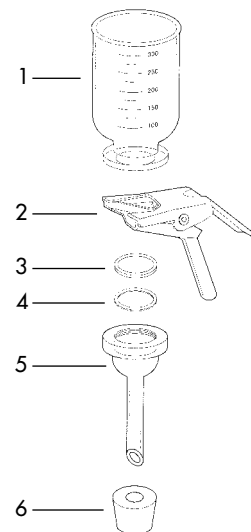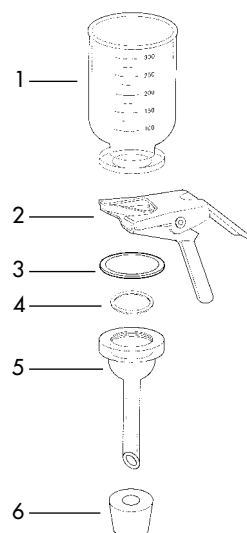
47 mm Glass Microanalysis Holders – With All-Teflon Seal

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

SPECIFICATIONS
As for corresponding basic model except for PTFE (Teflon) 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	**Model**	**KG 47 TF**
	Catalog No.	311600
Stainless steel support	**Model**	**KGS 47 TF**
	Catalog No.	351600
PTFE support	**Model**	**KGT 47 TF**
	Catalog No.	351620

All teflon seal

Replacement Parts

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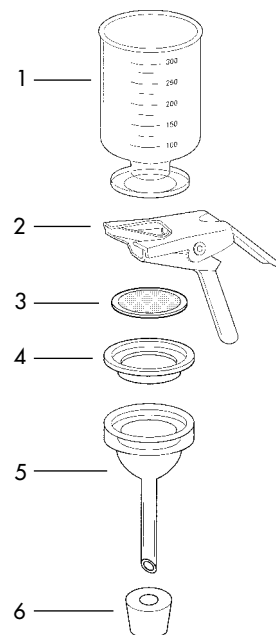
KGS 47 TF

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 84)

SPECIFICATIONS
As for corresponding basic model with additional components as described below.
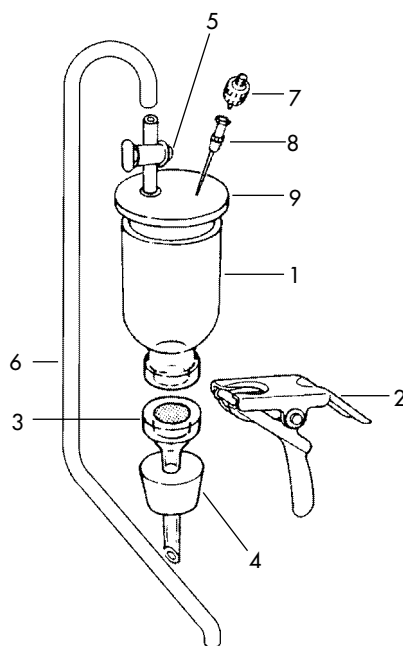
ORDERING INFORMATION

Funnel capacity	300 ml
Model	**STU 1A**
Catalog No.	314100

Replacement Parts

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

Sterility test unit

314100 STU

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

KG 90

ORDERING INFORMATION

Funnel capacity		1000 ml graduated (1100 ml max.)
Glass frit support	**KG 90**	352100
Stainless steel support	**KGS 90**	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	Stopper, #8	311404	
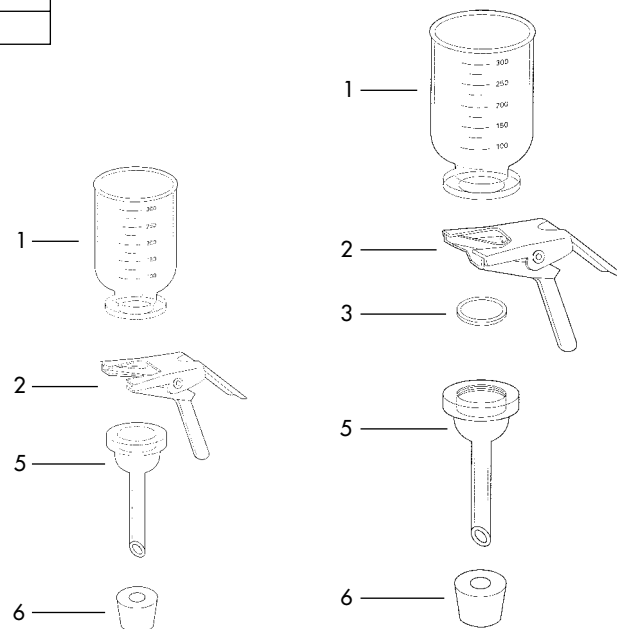
KG 90

KGS 90

Filter Flasks and Stoppers

- Borosilicate filter flasks and silicone rubber stoppers are compatible with Advantec MFS 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 and 25 mm filter holders to 125 ml (#5) and 1 L (#8b) flasks
- #8 stopper fits 47 and 90 mm filter holders to the 1 L flask
- 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 MFS 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

GFA 25

SPECIFICATIONS

	GFA 25	GFA 47
Materials:		
Funnel, base unit and flask	Borosilicate glass	
Support	Borosilicate glass frit, stainless steel, or PTFE	
Connections:		
Ground glass joint	14/20 female	40/35 female
Side arm	6 mm (³/₈ inch)	6 mm (³/₈ inch)
Capacity:		
Funnel	15 ml	300 ml
Receiver flask	125 ml	1000 ml
Membrane filter size	25 mm	47 mm
Prefilter size (if used with membrane)	16 mm	35 mm
Filtration area	2.1 cm²	9.6 cm²

ORDERING INFORMATION

	GFA 25	GFA 47
Support type:		
Glass frit	311220	311420
Stainless steel	311320	311520
PTFE	-	311620

Replacement Parts

		GFA 25	GFA 47
1	Funnel (15 ml / 300 ml)	311201	311401
-	Support screen - SS	311304	311504
-	PTFE gasket (use with SS screen)	311305	311505
-	Support screen - PTFE	-	311604
4	Support base - glass frit	311222	311422
4	Support base - SS or PTFE support	311322	311522
5	Clamp	311003	311403
6	Receiver flask	311225	311425

Optional Accessories

	GFA 25	GFA 47
Funnel, 100 ml	-	311408
Funnel, 150 ml	311208	-
Funnel, 300 ml	311209	-
Funnel, 500 ml beveled	-	311409
Funnel, 1 liter graduated	-	311410
Receiver flask, 2 liter	-	311426
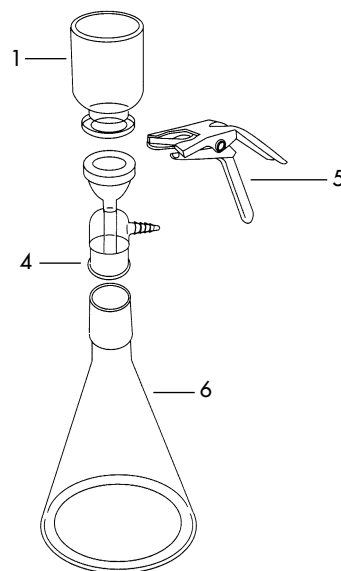
GFA

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 using a #8 stopper, P/FC 2 has female 40/35 joint to mount on an extraction manifold (page 83)
- **Available with sintered glass, stainless steel, or PTFE support**
- Applications include multiphase extraction using the Empore™ membrane

P/FC 2

SPECIFICATIONS

	P/FC-1	P/FC-2
Materials:		
Funnel, base unit and receiver tube	Borosilicate glass	
Support	Borosilicate glass frit, stainless steel, or PTFE	
Connections:		
Base to outlet/support	Stopper to standard manifold	40/35 ground glass joint
Alternate outlet to receiver tube	Ground glass joint	
Capacity:		
Funnel	300 ml	
Membrane Filter Compatibility:		
Membrane filter size	47 mm	
Prefilter size	35 mm	
Filtration area	9.6 cm^2	

ORDERING INFORMATION

Model	P/FC 1	P/FC 2
Outlet type	Stopper/manifold	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	Stopper/manifold	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	311504	
-	Support – PTFE	311604	
-	PTFE gasket (for stainless support)	311505	
4	Stopper	311404	-
5	Receiver tube	311705	
6	Clip	311706	
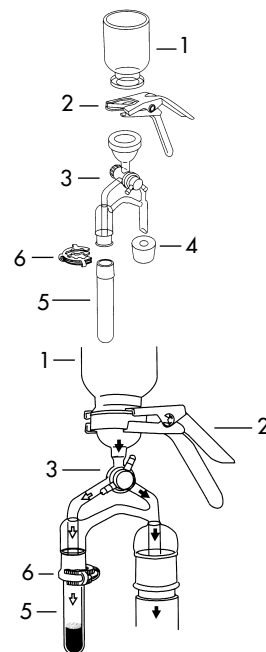
P/FC 2

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

KSF 47

SPECIFICATIONS

	KSF 47
Materials:	
Support	Type 316 stainless steel
Funnel, base	Type 304 stainless steel
Stopper	Silicone rubber
Gasket	PTFE
Connection:	
Included	#8 stopper adapts to standard 1 L vacuum filter flask or vacuum manifold cup
Capacity:	
Funnel	500 ml
Pressure:	Vacuum (21 in Hg recommended)
Weight:	0.5 kg (1.17 lb)
Membrane Filter Compatibility:	
Filter size	47 mm
Prefilter size	35 mm
Filtration area	9.3 cm^2

ORDERING INFORMATION

Model	**KSF 47**
Catalog No.	352600

Replacement Parts

		KSF 47
1	Funnel	352601
2	SS support screen	311504
3	PTFE gasket	311505
4	Base	312602
5	Stopper, #8	311404
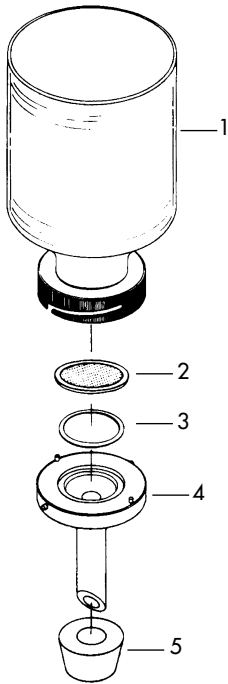
352600 KSF

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 47S) is interchangeable with all other models
- **Funnel cover** can be vented aseptically using disposable syringe filter (13JP050AN, see page 15)

KP 47 S   KP 47 H   KP 47 U   KP 47 W

SPECIFICATIONS

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

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	Stopper #8B		311008		
-	Cap and filter kit: 5 caps (501010) and 1 filter (13JP050AN)	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
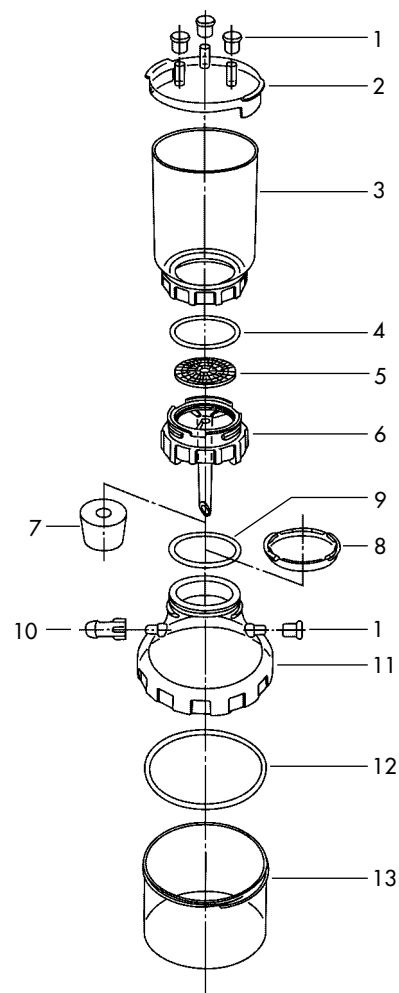
501020, 501030, 501050, 501000

PVC Vacuum Manifold – Standard Cup

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

KMP 3, 6

SPECIFICATIONS

Materials:	
Body and branches	Polyvinylchloride (PVC)
Valves	PTFE stopcock, PVC body
Connections:	
Outlet	$^1/_4$" male NPT to hose barb fitting connects main manifold to $^3/_8$" i.d. vacuum tubing
Standard cup	Accepts #8 stopper
Temperature:	
Maximum	60°C (140°F)

Dimensions:	L x W x H		Distance between stations		Weight	
	in	cm	in	cm	lb	kg
3 station	$17^3/_4$ x $4^3/_4$ x 7	45.1 x 12 x 17.8	$5^1/_2$	14	3.3	1.5
6 station	$34^1/_2$ x $4^3/_4$ x 7	87.6 x 12 x 17.8	$4^3/_4$	12	5.5	2.5

ORDERING INFORMATION

		Standard cup
3 station	**KMP 3**	313400
6 station	**KMP 6**	313600

Replacement Parts

1	Handle	313401
2	Handle set screw	313015
3	Pipe plug	313412
4	Hose barb	313411
5	Branch (Standard cup)	313410
6	Main manifold:	
	3 station	313403
	6 station	313603
7	Stopcock assembly, 2-way	313430
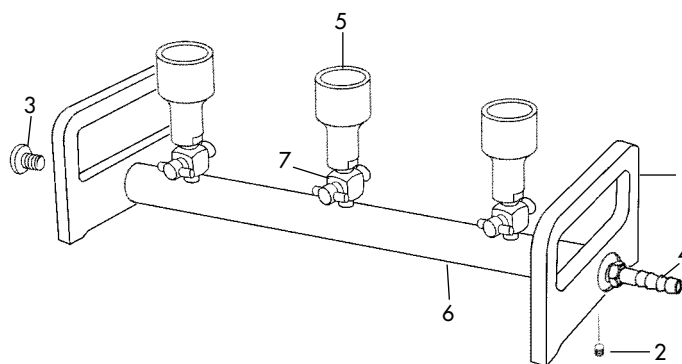
KMP 3

PVC Extraction Manifold – Exterior Taper

- **Exterior taper** accepts a 40/35 female joint
- **3-way valve** with luer slip vent port accepts disposable vent filters (supplied)
- **Lightweight**, 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

SPECIFICATIONS

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

Dimensions:	L x W x H		Distance between stations		Weight	
	in	cm	in	cm	lb	kg
Single	10 x $6^5/_8$ x 8	25.4 x 16.8 x 20.3	-	-	4	1.8
3 station	$21^1/_2$ x $6^5/_8$ x 8	54.6 x 16.8 x 20.3	$5^1/_2$	14	6	2.7
7 station	$47^1/_2$ x $6^5/_8$ x 8	120.6 x 16.8 x 20.3	$4^3/_4$	12	15	6.8

ORDERING INFORMATION

		Standard cup
Single	**KMX 1**	373130
3 station	**KMX 3**	373330
7 station	**KMX 7**	373730

Replacement Parts

1	Handle	373401
2	Socket cap screw	373015
3	Pipe plug	373412
4	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
	7 station	373703
-	Repair kit: 5 vent filters, 2 O-rings, 1 gasket	PVC kit
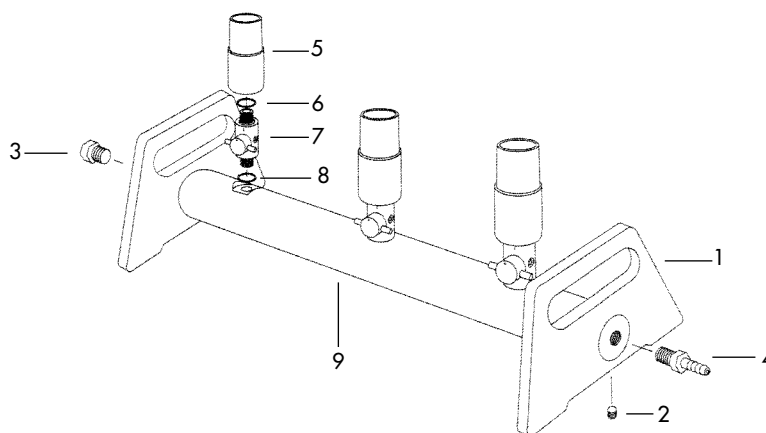
KMX 3

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 87)
- **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 $3/8$" i.d. vacuum tubing
Standard cup	Accepts #8 stopper
Exterior taper	40/35 male joint

Dimensions:	L x W x H		Distance between stations		Weight	
	in	cm	in	cm	lb	kg
Single	8 x 4$3/4$ x 8	20.3 x 12 x 20.3	-	-	5.5	2.5
3 station	18 x 4$3/4$ x 8	45.7 x 12 x 20.3	5$1/2$	14	9.9	4.5
6 station	28$1/2$ x 4$3/4$ x 8	72.4 x 12 x 20.3	4$3/4$	12	14.3	6.5

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

ORDERING INFORMATION

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

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

Replacement Parts

1	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
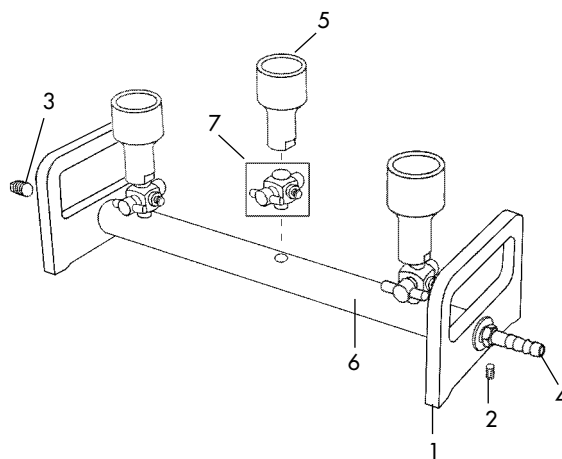
KM3N
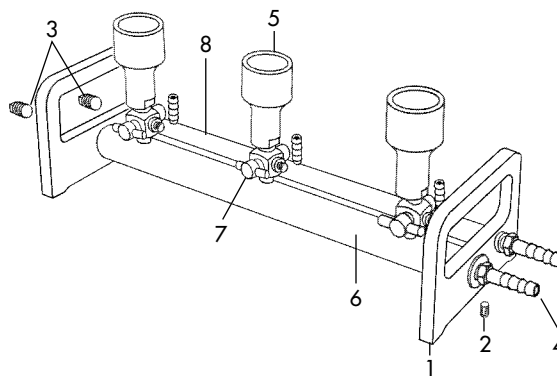
KM3

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

Materials:	
Wetted parts	Aluminum, stainless steel, and Nordell Normax
Valves	Reed type
Power cord	6' long, 3-wire
Connections:	
Inlet and outlet ports	1/4" NPTF
Power requirements	115 V AC / 60 Hz or 220 V AC / 50 Hz
Pressure:	
Maximum pressure	60 psi
Maximum vacuum	24" Hg
Temperature:	
Maximum inlet	37.8°C (100°F)
Free air capacity:	1.2 cfm
Weight:	9.1 kg (20 lb)

Model 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 regulator assembly	800820
Pressure regulator assembly	800830

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