

MultiVac 310 / 610 - MS

Aluminum Multi-Branch Manifold

MultiVac 300 / 600 - MS

MultiVac 300 / 600 - MB

MultiVac 301 / 601 - MB

Stainless Steel Multi-Branch Manifold

MultiVac 310 / 610 - MS - T

MultiVac 310 / 610 - MS - A

MultiVac 301 / 601 - MB - T

MultiVac 301 / 601 - MB - A

Vacuum Filtration System



ROCKER

Please read this instruction manual before using this product.

Important Notice

Please read this manual carefully before installing and operating. Failure to follow or any modification may result in potential hazard. We are not responsible for any injury or damage caused by any non-intended purposes and modifying without authorization.

1. Check the voltage specified on the name plate and ensure it matches the line voltage in your location.
2. Install the manifold and system in a clean, dust-less and ventilated area.
3. Never use this instrument with any corrosive, chemical or flammable liquid.
4. Do not pump any solution without filtration to avoid clogging.
5. Please discard packing material according to local related regulations.
6. Operating condition
 - (a) Ambient temperature: 5~ 40 °C
 - (b) Relative humidity: 80% RH Max.
 - (c) Power supply of Alligator 200: 100~240V, 50/60Hz
Power supply of Rocker 400: 100~120V, 50/60Hz or 200~240V, 50/60Hz
 - (d) Altitude: up to 2000 m
 - (e) Pollution degree: II
 - (f) IP20
 - (g) Overvoltage category: I
 - (h) Indoor use

Unpacking

Please check if the package is complete without any damage before unpacking. When unpacking the instrument, please make sure you have all accessories that indicated on the list. If there is any problem, please keep the serial number along with packing case and contact your local distributor immediately for assistance.

I. Aluminum Multi-Branch Manifold



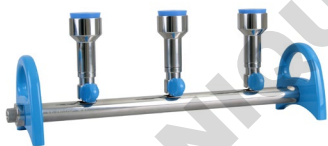
MultiVac 310 - MS



MultiVac 610 - MS

Model	Standard Package Includes:	
MultiVac 310 - MS	3 Places Aluminum Manifold with No. 8 Stopper Funnel Adaptor	x 1
MultiVac 610 - MS	6 Places Aluminum Manifold with No. 8 Stopper Funnel Adaptor	x 1

II. Stainless Steel Multi-Branch Manifold



MultiVac 300 - MS



MultiVac 600 - MS

Model	Standard Package Includes:	
MultiVac 300 - MS	3 Places Stainless Steel Manifold with No. 8 Stopper Funnel Adaptor	x 1
MultiVac 600 - MS	6 Places Stainless Steel Manifold with No. 8 Stopper Funnel Adaptor	x 1



MultiVac 300 - MB



MultiVac 600 - MB

Model	Standard Package Includes:	
MultiVac 300 - MB	3 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
MultiVac 600 - MB	6 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1



MultiVac 301 - MB



MultiVac 601 - MB

Model	Standard Package Includes:	
MultiVac 301 - MB	3 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
	Rocker, 100 ml SF Stainless Steel Funnel	x 3
MultiVac 601 - MB	6 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
	Rocker, 100 ml SF Stainless Steel Funnel	x 6

III. Vacuum Filtration System (with Rocker 400 Vacuum Pump)



MultiVac 310 - MS - T



MultiVac 610 - MS - T

Model	Standard Package Includes:	
MultiVac 310 - MS - T Aluminum Vacuum Filtration System	3 Places Aluminum Manifold with No. 8 Stopper Funnel Adaptor	x 1
	MF 3, 300 ml Magnetic Filter Holder with Lid Kit	x 3
	Rocker 400, Oil Free Vacuum Pump	x 1
	4000 ml PP Vacuum Bottle with drain	x 1
	Silicone Tube	x 2
MultiVac 610 - MS - T Aluminum Vacuum Filtration System	6 Places Aluminum Manifold with No. 8 Stopper Funnel Adaptor	x 1
	MF 3, 300 ml Magnetic Filter Holder with Lid Kit	x 6
	Rocker 400, Oil Free Vacuum Pump	x 1
	4000 ml PP Vacuum Bottle with drain	x 1
	Silicone Tube	x 2



MultiVac 301 - MB - T



MultiVac 601 - MB - T

Model	Standard Package Includes:	
MultiVac 301 - MB - T Stainless Steel Vacuum Filtration System	3 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
	Rocker, 100 ml SF Stainless Steel Funnel	x 3
	Rocker 400, Oil Free Vacuum Pump	x 1
	Dragon 100, Torch Burner	x 1
	4000 ml PP Vacuum Bottle with drain	x 1
	Pall, MCE Membrane, 47 mm, 0.45 µm, 200/PK	x 1
	Silicone Tube	x 2
MultiVac 601 - MB - T Stainless Steel Vacuum Filtration System	6 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
	Rocker, 100 ml SF Stainless Steel Funnel	x 6
	Rocker 400, Oil Free Vacuum Pump	x 1
	Dragon 100, Torch Burner	x 1
	4000 ml PP Vacuum Bottle with drain	x 1
	Pall, MCE Membrane, 47 mm, 0.45 µm, 200/PK	x 1
	Silicone Tube	x 2

IV. Vacuum Filtration System (with Alligator 200 Liquid Pump)



MultiVac 310 - MS - A



MultiVac 610 - MS - A

Model	Standard Package Includes:	
MultiVac 310 - MS - A Aluminum Vacuum Filtration System	3 Places Aluminum Manifold with No. 8 Stopper Funnel Adaptor	x 1
	MF 3, 300 ml Magnetic Filter Holder with Lid Kit	x 3
	Alligator 200, Diaphragm Liquid Pump	x 1
	Silicone Tube	x 1
	Silicone Tube	x 1
MultiVac 610 - MS - A Aluminum Vacuum Filtration System	6 Places Aluminum Manifold with No. 8 Stopper Funnel Adaptor	x 1
	MF 3, 300 ml Magnetic Filter Holder with Lid Kit	x 6
	Alligator 200, Diaphragm Liquid Pump	x 1
	Silicone Tube	x 1
	Silicone Tube	x 1



MultiVac 301 - MB - A



MultiVac 601 - MB - A

Model	Standard Package Includes:	
MultiVac 301 - MB - A Stainless Steel Vacuum Filtration System	3 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
	Rocker, 100 ml SF Stainless Steel Funnel	x 3
	Alligator 200, Diaphragm Liquid Pump	x 1
	Dragon 100, Torch Burner	x 1
	Pall, MCE Membrane, 47 mm, 0.45 µm, 200/PK	x 1
	Silicone Tube	x 1
	Silicone Tube	x 1
MultiVac 601 - MB - A Stainless Steel Vacuum Filtration System	6 Places Stainless Steel Manifold with Rocker SF Funnel Adaptor	x 1
	Rocker, 100 ml SF Stainless Steel Funnel	x 6
	Alligator 200, Diaphragm Liquid Pump	x 1
	Dragon 100, Torch Burner	x 1
	Pall, MCE Membrane, 47 mm, 0.45 µm, 200/PK	x 1
	Silicone Tube	x 1
	Silicone Tube	x 2

Installation and Operation

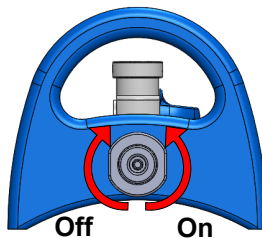
A. Attention

Both Aluminum and Stainless Steel Multi-Branch Manifold



1. MultiVac manifold can be connected with vacuum pump or liquid pump.
2. When connect with a vacuum pump, it is always recommended to install a vacuum bottle between the manifold and vacuum pump to prevent liquid from flowing into the vacuum pump.
3. The outlet direction of the of MultiVac manifold is interchangeable. The outlet can be disassembled by hand or tool to change into desired direction.

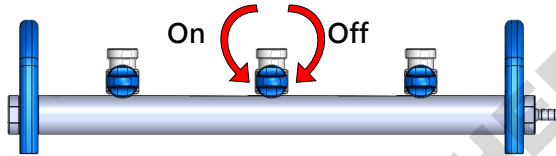
Stainless Steel Multi-Branch Manifold ONLY

4. The adjustable vent valve can avoid “Water Hammer” and help drain residual liquid in the tube.
5. Adjust the vent valve until smooth if water hammer effect happens. Turn the vent valve counterclockwise to draw out the remaining liquid after filtration if necessary.


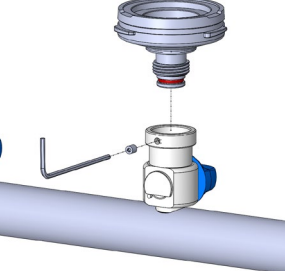


B. Manifold Preparation and Installation

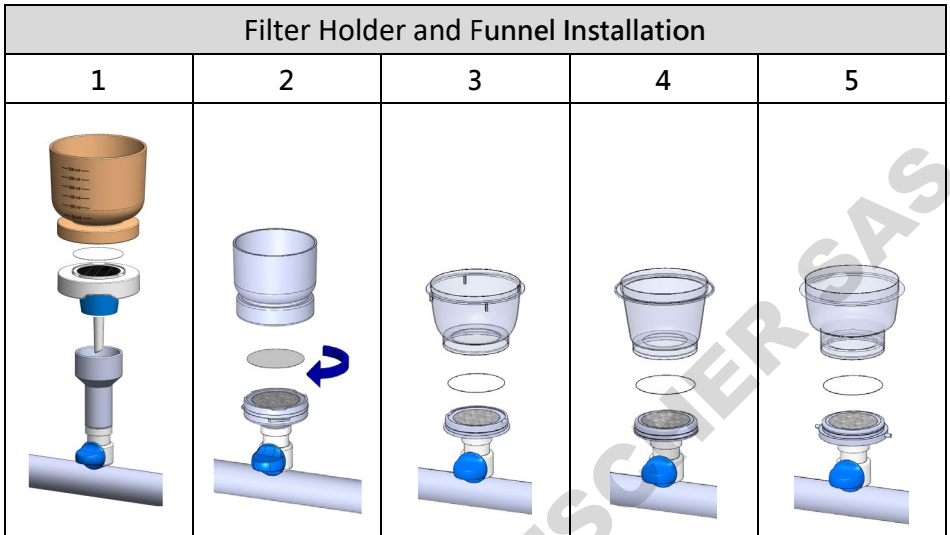
1. Make sure all valves are off  before use, rotate the valves counterclockwise to vertical position  for filtration.



2. **Stainless Steel Multi-Branch Manifold** can easily change the funnel adaptor to fit desired funnel.
 - 2.1 Loosen the fixing screw with L-Type hex key (2 mm) to change the funnel adaptor and tighten the screw to prevent new funnel adaptor from rotation.

Compatible with various kinds of funnel and filter holder	Replace funnel adaptor
	

3. Installation of Filter Holder and Disposable Funnel



• Both Aluminum and Stainless Steel Multi-Branch Manifold

(1) No. 8 Stopper Funnel Adaptor

Compatible with various kinds of filter holders with No. 8 silicone stopper

• Stainless Steel Multi-Branch Manifold only

(2) Rocker SF Funnel Adaptor

Fitting to Rocker SF 100 / 300 / 500 ml funnel, available for fast flame sterilization, and Pall, Sentino[®] 4870 (100 ml), 4871 (250 ml) plastic funnel.

(3) SS316 Adaptor for Pall Disposable Funnel

Fitting to Pall, Sentino[®] disposable plastic funnel 4870 (100 ml), 4871 (250 ml)

(4) SS316 Adaptor for Millipore Disposable Funnel

Fitting to Millipore, Microfil[®] disposable plastic funnel 100 / 250 ml

(5) SS316 Adaptor for Sartorius Disposable Funnel

Fitting to Sartorius, Microsart[®] disposable plastic funnel 16A07

C. Vacuum Filtration System Installation and Operation

I. Vacuum Filtration System (with Rocker 400 Vacuum Pump)

- A. Connect the installed manifold, vacuum bottle and Rocker 400 vacuum pump with 2 silicone tubes as shown below.
- B. Install the membrane in filter holder or funnel as B-3 step.
- C. Turn on the pump and pour the sample liquid into the funnel and turn the valve to “vertical” position to start filtration.
- D. After finishing filtration, turn the valve to “off” position and retrieval the membrane.
- E. SF funnel can be fast flame-sterilized by Dragon 100 torch burner or autoclaved before proceeding next filtration.



Vacuum Filtration System Assembly Diagram

II. Vacuum Filtration System (with Alligator 200 Diaphragm Liquid Pump)

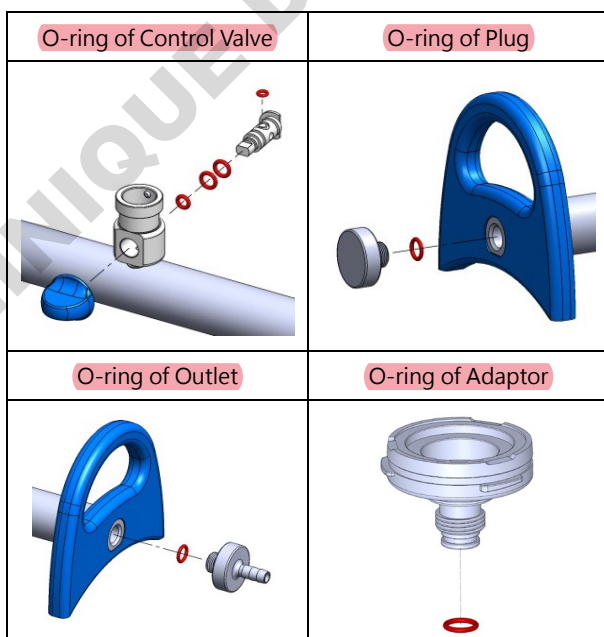
- A. Connect the installed manifold and inlet (IN) of Alligator 200 liquid pump together with silicone tube as shown below.
 - B. Connect the long silicone tube to outlet (OUT) of Alligator 200 liquid pump and put another side of silicone tube into sink or container to drain or collect the waste liquid.
 - C. Install the membrane in filter holder or funnel as B-3 step.
 - D. Turn on the pump and pour the sample liquid into the funnel and turn the valve to “vertical” position to start filtration.
 - E. After finishing filtration, turn the valve to “off” position and retrieval the membrane.
 - F. SF funnel can be fast flame-sterilized by Dragon 100 torch burner or autoclaved before proceeding next filtration.
- The length of silicone tube can be cut as your needed.



Vacuum Filtration System Assembly Diagram

Maintenance

1. Please suck in pure water to clean the tubing after every use and keep pumping air for at least 3 min to drain out the residual liquid.
2. Pump is not autoclavable, please clean the surface with pure water or 75% ethanol.
3. MultiVac manifold, filter holder and vacuum bottle are autoclavable (121°C, 1 bar, 20 min). Please keep all control valves, knobs and vent valve at "OPEN" position to make a complete sterilization. You can also clean the surface of manifold with pure water or 75% ethanol.
4. Funnels, adaptors, and membrane supports which are made of SS316 can be fast sterilized by flame or autoclaved (121°C, 1 bar, 20 min).
5. O-ring(s) and silicone tube(s) are consumables, it is recommended to replace it on a yearly basis or as needed to ensure good operation.



Troubleshooting

Problem	Reason and Solution
Instrument fails to start	<ul style="list-style-type: none"> • Loose plug → Reconnect plug to power supply. • Switch is broken → Contact distributor for assistance.
Poor vacuum	<ul style="list-style-type: none"> • Outlet is blocked → Clean or stretch the outlet tube. • Funnel adaptor O-ring is broken → Replace the O-ring • Inner tube leakage → Contact distributor for assistance. • Internal wiring loose → Contact distributor for assistance.
Low filtration speed	<ul style="list-style-type: none"> • Connection between funnel and funnel adaptor is not sealed → Reconnect to ensure they're tightly sealed. • Wrong membrane → Change a proper one. • Membrane is blocked → Replace a new membrane. • Funnel adaptor O-ring is broken → Replace the O-ring • Silicone tube is bent too much → Replace silicone tube • Internal wiring loose → Contact distributor for assistance.

Ordering Information

190200-20	Rocker's SF Funnel Adaptor
190100-71	Silicone Stopper Funnel Adaptor (Long Type)
190100-73	SS316 Adaptor for Millipore MIACFD101 and MIACFD201 Disposable Plastic Funnel
190100-74	SS316 Adaptor for Sartorius 16A07 Disposable Plastic Funnel
190100-75	SS316 Adaptor for Pall 4870, 4871 Disposable Plastic Funnel
180100-01/03/05	Rocker SF Stainless Steel Funnel 100 ml / 300 ml / 500ml
200300-01	MF 3, 300 ml Magnetic Filter Holder
200500-01	MF 5, 500 ml Magnetic Filter Holder
167400-11(22)	Rocker 400, Vacuum Pump, AC110V/60Hz (AC 220V/50Hz)
181200-01(02)	Alligator 200, Diaphragm Liquid Pump, AC100~240V Adaptor, US Plug (EU Plug)
167200-48	4000 ml Heavy Duty PP Vacuum Bottle with drain
167100-20	PALL, A/E Glass Fiber Filter, 47mm, 1 um, 100/PK
167100-52	PALL, GN-6 Membrane, Grid, Sterilized, 47mm, 0.45 um, 200/PK
177100-00	Dragon 100 Torch Burner
167110-16	Silicone Stopper (No.8)
167200-38	Silicone Tube, Ø 6 x 12 mm, 1 m
180300-68	Silicone Tube, Ø 8 x 14 mm, 2 m