

## Pump Application Guide



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Recommended Pumps	Oil Free Vacuum Pump					PTFE Coated Vacuum Pump			Chemical Resistant Vacuum Pump					Oil Vacuum Pump					Liquid Pump	Suction System		Vacuum Filtration System			Vacuum Filtration System	
	Rocker 300	Rocker 400	Rocker 410	Rocker 800 / 801	Rocker 810 / 811	Rocker 300C	Rocker 400C	Rocker 410C	Chemker 300	Chemker 400	Chemker 410 / 411	Chemker 600	Chemker 610 / 611	Tanker 150	Tanker 215	Tanker 230	SATO DW-120C	SATO USW-300C	Alligator 200	Lafil 100	Lafil 200	Lafil 300	Lafil 400	Lafil 300C	WaterVac 100	WaterVac 200
General Filtration	●	●	●																				●	●		
Solvent Purification						●	●	●	●	●	●															●
Microbiological Test	●	●																	●						●	●
Suspended Solid Test	●	●																	●							●
Components and Parts Cleanliness Test						●																			●	
Aspiration	●					●														●	●					
Rotary Evaporator										●		●														
Centrifugal Vacuum Concentrator										●		●					●	●								
Freeze Dryer																	●	●								
Vacuum Oven			●	●	●					●	●	●		●		●										
Vacuum Desiccator / Cabinet			●		●			●		●		●														
Solid-Phase Extraction						●	●		●																	
Microplate Vacuum Manifold	●																									
Immunostaining of Gel Electrophoresis						●			●																	
Gel Dryer							●	●		●	●	●														
Vacuum Mixer			●		●									●	●											
Air Sampling	●	●		●		●	●																			

\* Deep dots are the most recommended product.



**Rocker**  
Oil Free Vacuum Pump

Built in Prote™ Overflow Protection



**Chemker**  
Chemical Resistant Vacuum Pump

The PTFE pump head and FFKM valve ensure exceptional resistance to chemical



**Alligator**  
Diaphragm Liquid Pump

Transfers liquid directly to waste and saves 40% bench space



**WaterVac**  
Vacuum Filtration System

Systematic platform can both filtrate and drain the waste liquid away directly



**Rocker**  
PTFE Coated Vacuum Pump

Offers good chemical resistance with durable PTFE-coated pump head




**Tanker**  
Oil Vacuum Pump

High vacuum, high flow rate



**Lafil**  
Suction System / Vacuum Filtration System


An All-in-One and compact system provides safe design of operation









**MultiVac**  
Vacuum Filtration System

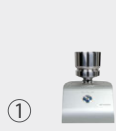




Specialized for large number of samples filtration


## Applications




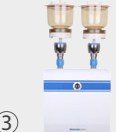

General Filtration/ Solvent Purification		Recommended Sets	Air Flow (L/min)	Vacuum (mbar)
	General Filtration	① Lafil 300 - LF 30	23	105
		② Rocker 300 - MF 31	23	105
	Solvent Purification	③ Lafil 300C - VF 12	23	145
		④ Rocker 300C - VF 12	23	145
		⑤ Chemker 300 - VF 12	20	105








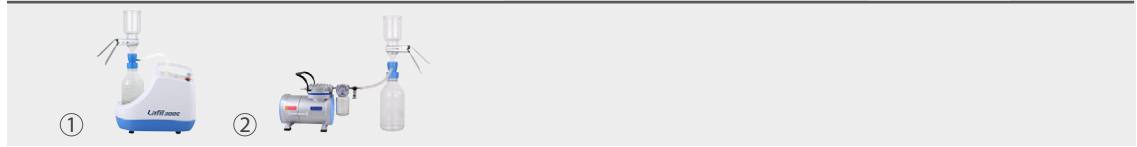
Microbiological Test		Recommended Sets	Air Flow (L/min)	Vacuum (mbar)
	Small Amount	① WaterVac 101 - MB	(liq.) 0.5	313
		② WaterVac 201 - MB	(liq.) 4.5	313
		③ Lafil 300 - SF 10	23	105
	Large Amount	④ MutilVac 301 / 601 - MB - A	(liq.) 4.5	313
		⑤ MutilVac 301 / 601 - MB - T	37	105








Suspended Solid Test		Recommended Sets	Air Flow (L/min)	Vacuum (mbar)
	Small Amount	① Lafil 300 - LF 30	23	105
		② Rocker 300 - MF 31	23	105
		③ WaterVac 200 - MS	(liq.) 4.5	313
	Large Amount	④ MutilVac 310 / 610 - MS - A	(liq.) 4.5	313
		⑤ MutilVac 310 / 610 - MS - T	37	105


Components and Parts Cleanliness Test	Recommended Sets	Air Flow (L/min)	Vacuum (mbar)
	① Lafil 300C - VF 12	23	145
	② Rocker 300C - VF 12	23	145

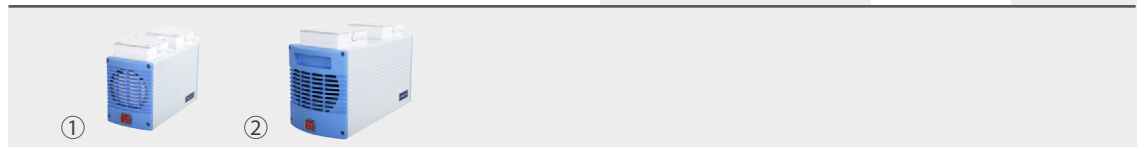



Aspiration	Recommended Sets	Air Flow (L/min)	Vacuum (mbar)
	① Lafil 200 - BioDolphin	10	213
	② Lafil 200 - Plus	10	213
	③ Lafil 100	4	345



\* Energy-saving models, Lafil 100<sup>eco</sup> and Lafil 200<sup>eco</sup>, are optional.

Rotary Evaporator	Volume	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	< 1L	① Chemker 410 / 411	20	10
	< 3L	② Chemker 610 / 611	34	7



Centrifugal Vacuum Concentrator	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	① Chemker 410 / 411	20	10
	② Chemker 610 / 611	34	7
	③ SATO DW-120C	120	6.7x10 <sup>-4</sup>
	④ SATO USW-300C	300	6.7x10 <sup>-4</sup>



Freeze Dryer		Recommended Pump	Air Flow (L/min)	Vacuum (mbar)
	①	SATO DW-120C	120	$6.7 \times 10^{-4}$
	②	SATO USW-300C	300	$6.7 \times 10^{-4}$


  




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Vacuum Oven		Volume	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	Non-solvent Sample	< 15L	① Rocker 410	23	30
		< 30L	② Rocker 810	60	30
		< 60L	③ Tanker 150	142	$1.3 \times 10^{-1}$
			④ Tanker 230	85	$6.6 \times 10^{-2}$
	Solvent Sample	< 15L	⑤ Chemker 410/411	20	10
			⑥ Chemker 610/611	34	7
		< 30L	⑦ Chemker 600	65	65
		< 60L	③ Tanker 150	142	$1.3 \times 10^{-1}$
④ Tanker 230	85		$6.6 \times 10^{-2}$		


  




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Vacuum Desiccator/ Cabinet		Volume	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	General Solution	< 15L I.D. < 200 mm	① Rocker 410	23	30
		> 15L I.D. > 200 mm	② Rocker 810	60	30
	Solvent	< 20L I.D. < 350 mm	③ Chemker 410/411	20	10
			④ Chemker 610/611	34	7
			⑤ Rocker 410C	23	25


  




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Solid-Phase Extraction	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	① Rocker 300C	23	145
	② Rocker 400C	34	105
	③ Chemker 300	20	105
			

Microplate Vacuum Manifold	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	① WelVac 210	23	105
	② Rocker 300	23	105
			

Immunostaining of Gel Electrophoresis	Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	① Rocker 300C	23	145
	② Chemker 300	20	105
			

Gel Dryer		Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
		① Rocker 410C	23	25
		② Chemker 410 / 411	20	10
		③ Chemker 610 / 611	34	7
				

Vacuum Mixer		Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
		① Rocker 410	23	30
		② Rocker 810	60	30
		③ Tanker 215	42	$6.6 \times 10^{-2}$
		④ Tanker 230	85	$6.6 \times 10^{-2}$
				

Air Sampling		Recommended Pumps	Air Flow (L/min)	Vacuum (mbar)
	Gas Sample Bag	① Rocker 300C	23	145
		② Rocker 400C	34	105
		③ Rocker 430	34	170
	Air Sample Chamber	④ Rocker 300	23	105
		⑤ Rocker 400	37	105
		⑥ Rocker 800	100	120
