

LabTech



VP30 - VP18 Plus - VP50 Plus

VACUUM PUMPS

USER MANUAL



Thank you for selecting our VP series vacuum pumps.

We are sure that you will be completely satisfied with the performance of this new unit entering your laboratory. We invite you to read carefully this user manual and to keep it close to the instrument for convenient and fast consulting. For any possible clarification or any request for assistance please contact either our local Representative or:

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INDEX

1. INTRODUCTION	4
2. SAFETY RULES.....	7
3. OPERATION PROCEDURE.....	9
4. TROUBLESHOOTING	10
5. SOLVENTS TABLE	11
6. SERVICE	12

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VP30 – VP18 Plus - VP50 Plus

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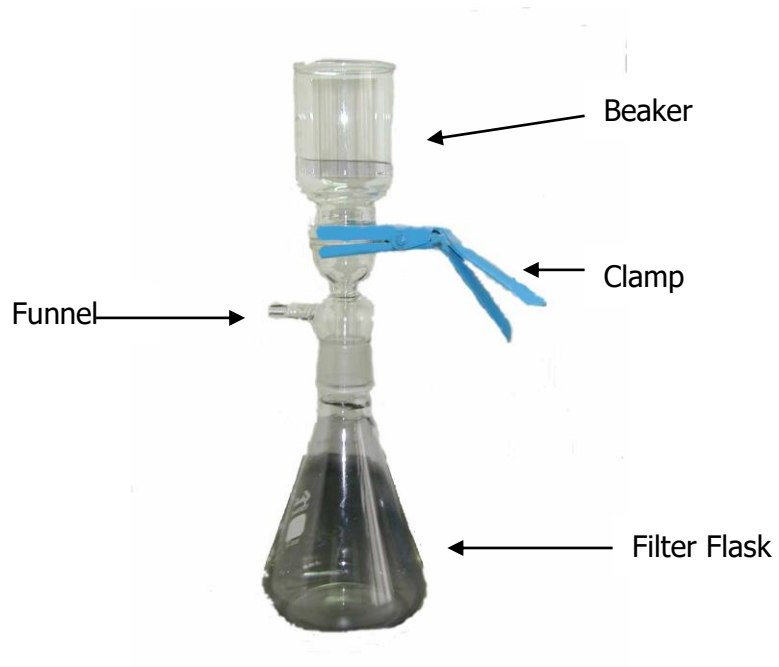
1. INTRODUCTION

Model	VP30	VP18 PLUS	VP50 PLUS
Voltage (V)	230V 50/60HZ	230V 50/60HZ	230V 50/60HZ
Power (W)	80	140	130
Pumping speed (L/min)	30	18	50
Vacuum Pressure (mbar)	250	20	150
Dimension (mm) (W×L×H)	315×180×240	315×180×240	315×180×240
Weight (kg)	6	7	8





FILTER FLASK (ACCESSORY)



2. SAFETY RULES

General Information

Please read carefully this user manual before starting to use the instrument and follow its prescriptions with the utmost care. This user manual is part of the delivery, hence must be always kept together with the instrument on its working place.

It is imperative that every person operating with this system has read and fully understood this manual. The non-observance of the instructions contained herein or improper use may involve damages/injuries that are not covered by product liability.

Never place the unit in a location where excessive heat, moisture, or corrosive materials are present.

The unit construction provides extra protection against the risk of electrical shock by grounding appropriate metal parts. The extra protection may not function unless the power cord is connected to a properly grounded outlet. It is the user's responsibility to assure a proper ground connection is provided.

Observe all warning labels and never remove them.

Never operate damaged or leaking equipment.

Never operate the unit without fluid in the bath.

Never operate equipment with damaged power cords.

Pay attention to the thermal expansion of bath fluid during heating to avoid the risk of overflowing.


Use suitable connecting tubes. Make sure that the tubes are securely attached.

Take care before drain the liquid out, be sure to cool it down below 40°C.


Always turn off the unit and disconnect the power cord from the plug source before performing any service or maintenance procedure or before moving the unit.

It's better to consult the Labtech Service Team before performing installation, operation, maintenance, procedures other than those described in this manual may result in a hazardous situation and may void the warranty.


Electrical safety

The instrument has to be used within the rated voltage. Prior to use, please check if the wire is  aged. In case of aged wires, please contact the after-sales service for inspection. It is forbidden to disassemble the instrument and to connect internal circuit parts, in order to avoid a short circuit or open circuit.

Fire safety

Numerous reagents are flammable and explosive. When the solvent vapor concentration reaches a certain level, it would be flammable and could cause fire. The instrument  should be kept away from the sources of ignition and high temperature places. If there is solvent pungent smell, carefully check whether there is gas or liquid leakage, and turn off the power.

Chemical safety

The instrument is an instrument for organic chemical sample pretreatment. The involved  chemical solvents have harmful effects on the human health. Despite the instrument is fully closed and features full vent design, it is recommended to pay attention to the personal safety during the use. Regular check of liquid waste barrels as well as working conditions of the vent fan are required to avoid the risk of leakage caused by corrosion and to avoid the formation of organic solvent vapors affecting operators' health. If there is a fault, please contact the Labtech Service Team.

3. OPERATION PROCEDURE

Step 1: Use a rubber pipe to connect the instrument to the vacuum pump tightly after making sure the in and out connectors are connected. Please make sure the whole system does not leak and it is tightly connected. Then connect the power cord.

Step 2: Switch on the unit.

4. TROUBLESHOOTING

The Pump Does Not Start After Switching The Power On

Check the power cord and ensure it is plugged in.

Check whether or not the system has higher negative pressure. This can be judged from the vacuum gauge. If negative the pressure is bigger than -0.05MPa the pump cannot start. The pump will work again as long as release the atmospheric pressure inside the system and back to regular level.

The Pressure Declines Rapidly

Check whether or not the liquid, volatile solvent vapours or particles are inhaled into the pump. If so, please pull out the "IN" connection pipe and then switch the power on, and make pump working without loading for about 10 minutes to dry up or blow out the impurities inside the pump.

5. SOLVENTS TABLE

Solvent	Formula	Molar mass	Evaporation energy	Boiling point	Density in	Vacuum in mbar for
		in g/mol	in J/g	at 1013 mbar	g/cm ³	boiling point at 40 °C
Acetone	CH ₃ C(=O)CH ₃	58.1	553	56	0.790	556
n-amylalcohol, n-pentanol	C ₅ H ₁₂ O	88.1	595	37	0.814	11
Benzene	C ₆ H ₆	78.1	548	80	0.877	236
n-butanol	C ₄ H ₁₀ O	74.1	620	118	0.810	25
tert. butanol (2-methyl-2-propanol)	C ₄ H ₁₀ O	74.1	590	82	0.789	130
Chlorobenzene	C ₆ H ₅ Cl	112.6	377	132	1.106	36
Chloroform	CHCl ₃	119.4	264	62	1.483	474
Cyclohexane	C ₆ H ₁₂	84.0	389	81	0.779	235
Diethylether	C ₄ H ₁₀ O	74.0	389	35	0.714	850
1,2-dichloroethane	C ₂ H ₄ Cl ₂	99.0	335	84	1.235	210
1,2-dichloroethylene (cis)	C ₂ H ₂ Cl ₂	97.0	322	60	1.284	479
1,2-dichloroethylene (trans)	C ₂ H ₂ Cl ₂	97.0	314	48	1.257	751
Diisopropyl ether	C ₆ H ₁₄ O	102.0	318	68	0.724	375
Dioxane	C ₄ H ₈ O ₂	88.1	406	101	1.034	107
DMF (dimethyl-formamide)	C ₂ H ₇ NO	73.1		153	0.949	11
Acetic acid	C ₂ H ₄ O ₂	60.0	695	118	1.049	44
Ethanol	C ₂ H ₆ O	46.0	879	79	0.789	175
Ethylacetate	C ₄ H ₈ O ₂	88.1	394	77	0.900	240
Heptane	C ₇ H ₁₆	100.2	373	98	0.684	120
Hexane	C ₆ H ₁₄	86.2	368	69	0.660	360
Isopropylalcohol	C ₃ H ₈ O	60.1	699	82	0.786	137
Isoamylalcohol (3-methyl-1-butanol)	C ₅ H ₁₂ O	88.1	595	129	0.809	14
Methylethylketone	C ₄ H ₈ O	72.1	473	80	0.805	243
Methanol	CH ₄ O	32.0	1227	65	0.791	337
Methylene chloride, dichloromethane	CH ₂ Cl ₂	84.9	373	40	1.327	850
Pentane	C ₅ H ₁₂	72.1	381	36	0.626	850
n-propylalcohol	C ₃ H ₈ O	60.1	787	97	0.804	67
Pentachloroethane	C ₂ HCl ₅	202.3	201	162	1.680	13
1,1,1,2-tetra-chloroethane	C ₂ HCl ₄	167.9	247	146	1.595	20
Tetrachlorocarbon	CCl ₄	153.8	226	77	1.594	271
1,1,1-trichloroethane	C ₂ H ₃ Cl ₃	133.4	251	74	1.339	300
Tetra-chloro-ethylene	C ₂ Cl ₄	165.8	234	121	1.623	53
THF (tetrahydrofurane)	C ₄ H ₈ O	72.1		67	0.889	374
Toluene	C ₇ H ₈	92.2	427	111	0.867	77
Trichloroethylene	C ₂ HCl ₃	131.3	264	87	1.464	183
Water	H ₂ O	18.0	2261	100	1.000	72
Xylene (mixture)	C ₈ H ₁₀	106.2	389			25
o-xylene	C ₈ H ₁₀	106.2		144	0.880	
m-xylene	C ₈ H ₁₀	106.2		139	0.864	
p-xylene	C ₈ H ₁₀	106.2		138	0.861	

8. SERVICE

The LABTECH worldwide technical support network consists of highly trained Field Service Engineers, Technical Support Specialists and Service Coordinators who are ready to quickly assist customers with answers and solutions to service needs and application questions.

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