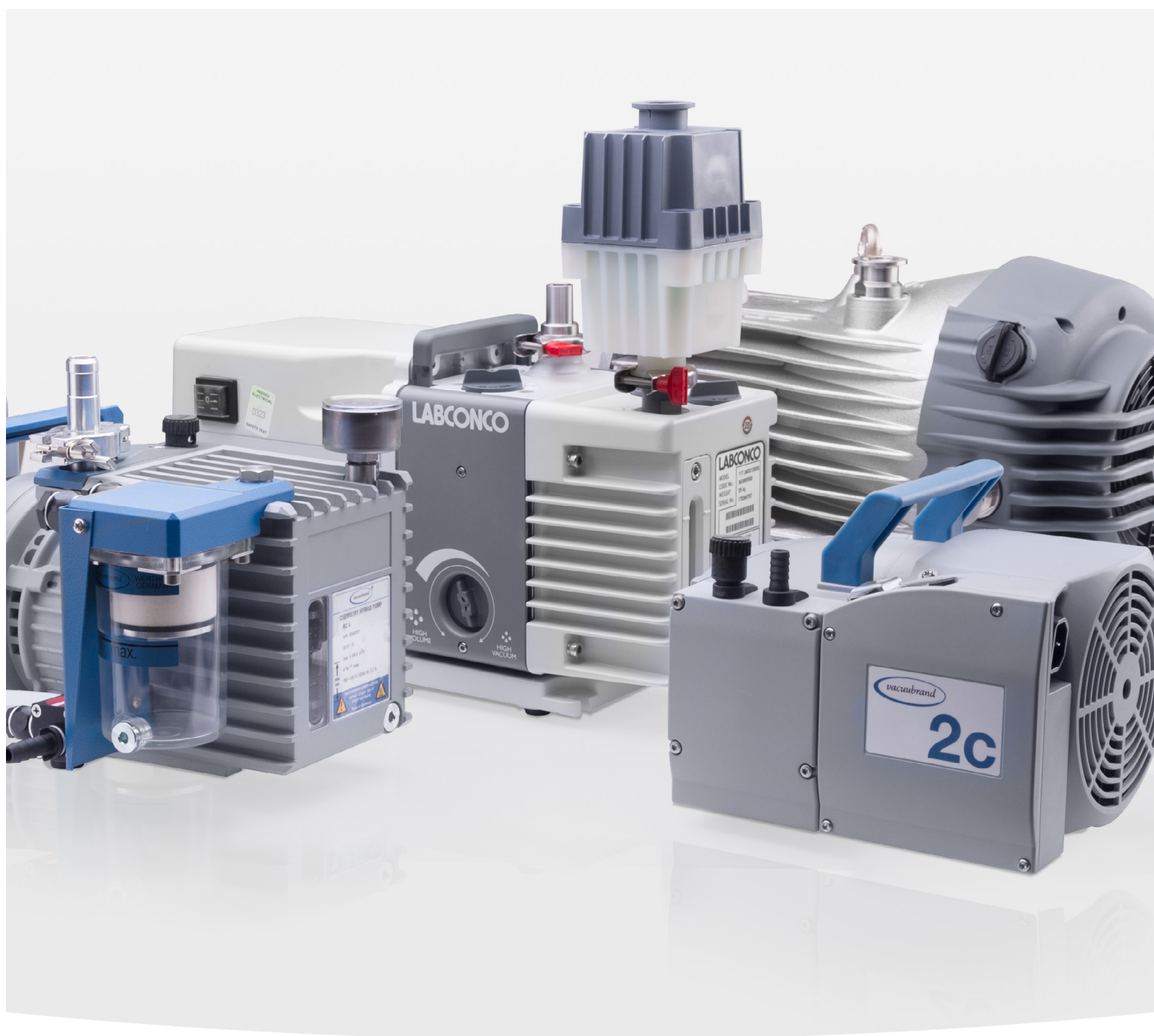


# Vacuum Pump Selection Guide



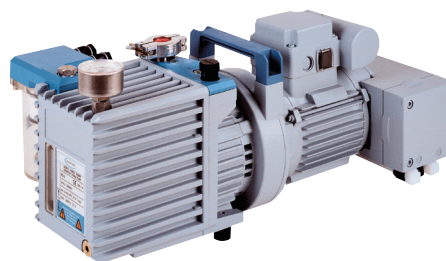
# Vacuum Pumps

## Features & Benefits



### Rotary Vane

- Designed for use with aqueous samples
- Single phase direct drive motor, totally enclosed and fan cooled. Should the motor overheat, the thermal overload device switches off the pump. When the pump cools down, the motor automatically restarts
- Ultimate vacuum (total pressure)  $2 \times 10^{-3}$  mBar (1.5 micron)



### VACUUBRAND HYBRID\*

- Designed for use with acids and other harsh chemicals including TFA, TFA by-products, acetonitrile, HBe and  $\text{HNO}_3$  present in samples such as HPLC-prepared and peptide purified materials
- Comprised of a two-stage rotary vane pump and two-stage, chemical-resistant diaphragm pump. Provides a deep vacuum required for quality freeze drying and evaporation with superior solvent and acid handling capabilities
- Ultimate vacuum (partial pressure)  $2 \times 10^{-3}$  mBar (1.5 micron)



### Diaphragm

- PTFE-corrosion resistant
- Designed for corrosive applications
- For evaporation products only
- Wetted parts are PTFE-coated for corrosion resistance
- Ultimate vacuum (total pressure)  $<7$  or  $<2$  mBar



### Scroll

- Designed for use with acids below 20% concentration and solvents including acetonitrile
- Two spiral scrolls compress air and vapors to move them toward the exhaust
- Oil-free design eliminates the use of hydrocarbons
- Ultimate vacuum (partial pressure)  $7 \times 10^{-3}$  mBar (5.3 micron) or  $2 \times 10^{-2}$  mBar (15 micron)

\*VACUUBRAND™ and VACUUBRAND HYBRID™ are trademarks of VACUUBRAND GMBH + CO KG.

# Vacuum Pumps

## Specifications

### Rotary vane models feature:

- Compatible with Labconco Freeze Dryers, Centrifugal Concentrators and Controlled Atmosphere Glove Boxes
- Ultimate vacuum (total pressure)  $2 \times 10^{-3}$  mBar (1.5 micron)
- On/off switch. Two inlet adapters (1/2" and 3/4" OD). Cast aluminum casing and rubber feet
- Mode selector with two positions: High Vacuum and High Throughput
- Gas ballast with three positions: Closed, Low Flow and High Flow
- Single phase direct drive motor
- Isolation valve seals the inlet to prevent oil and air contamination of the system in the event of power failure
- Retractable lifting handle (models: 1472100 and 7739402)
- Lifting bracket (models: 1467700 and 7739403)
- Overall dimensions: 6.5" w x 17.0" d x 10.4" h
- Shipping weight:
  - 62 lbs. (28 kg) (models: 1472100 and 7739402)
  - 65 lbs. (30 kg) (models: 1467700 and 7739403)
- Include four each one liter bottles of vacuum pump oil and one exhaust filter with oil mist and odor filter elements

### VACUUBRAND HYBRID\* models feature:

- Compatible with Labconco Freeze Dryers and Centrifugal Concentrators
- Ultimate vacuum (partial pressure)  $2 \times 10^{-3}$  mBar (1.5 micron)
- Comprised of a two-stage rotary vane pump and two-stage, chemical-resistant diaphragm pump
- Lower maintenance, longer lasting. The diaphragm pump, made of PTFE and other chemical-resistant fluoropolymer components evacuates the oil reservoir, freeing it from corrosive gases and vapors, thus extending the life of the oil and ultimately the life of the pump
- Environmentally-friendly. Pump oil lasts up to 10 times longer than in conventional rotary vane pumps under virtually all conditions. Fewer oil changes conserves resources
- Pressure control valve compensates for the different volumes displaced by the two pumps
- Glass separator captures downstream condensate vapors
- Lifting handle
- 3/4" OD inlet adapter
- Overall dimensions: 20.0" w x 12.0" d x 9.1" h
- Shipping weight: 66 lbs. (30 kg)
- Includes one liter bottle of vacuum pump oil, power switch, power cord and plug

### Scroll models feature:

- Designed for use with acids below 20% concentration and solvents including acetonitrile
- Compatible with Labconco Freeze Dryers and Dry Evaporation Systems
- Ultimate vacuum (partial pressure)  $7 \times 10^{-3}$  mBar (5.3 micron) for 7587000
- Ultimate vacuum (partial pressure)  $2 \times 10^{-2}$  mBar (15 micron) for 7587100
- Low maintenance, longer lasting. Since these dry pumps do not require oil, lifetime operation costs are lower and less maintenance is needed compared to oil pumps
- Two spiral scrolls compress air and vapors to move them toward the exhaust
- Environmentally-friendly. Oil-free design has no hydrocarbons
- Vacuum without contamination. Lubricant-free within the vacuum envelope and hermetically-sealed environment renders a totally clean and dry vacuum to prevent cross contamination
- Advanced scroll-form and tip-seal technologies deliver best-in-class vacuum performance and ultimate vacuum levels
- Unique tip seal design significantly reduces wear to minimize maintenance and extend service life
- Quiet operation of <52 dB(A) for minimal environmental impact
- 3/4" OD inlet adapter
- Overall dimensions: 20.0" w x 12.0" d x 15.0" h
- Shipping weight: 59 lbs. (27 kg)
- Include power switch, power cord and plug






### Diaphragm models feature:

- Designed for corrosive applications
- Compatible with Labconco Centrifugal Concentrators and Evaporation Systems
- Ultimate vacuum (total pressure) <7 mBar
- On/off switch. One inlet adapters (1/2" OD)
- Wetted parts are PTFE-coated for corrosion resistance
- Overall dimensions:
  - 9.6" w x 8.3" d x 7.8" h (models: 7359020 and 7359030)
  - 9.1" w x 15" d x 6.7" h (models: 7393000 and 7393000)
- Shipping weight: 38 lbs. (15 kg) (models: 7359020 and 7359030)
- Shipping weight: 40 lbs. (18 kg) (7393000 and 7393000)
- Includes power cord and plug


# Vacuum Pumps

## Selection Guide

### Centrifugal Vacuum Concentrators

Model	Application	Sample Type	Pump Type	Recommended Pump		Recommended Trap
				115 Volts	230 Volts	
 <b>Mobile or Systems</b>	Evaporation	Any, Small Volumes	Small Diaphragm	<b>7359020</b>	<b>7359030</b>	Mechanical cold & chemical traps included
		Any, Large Volumes	Large Diaphragm	<b>7393000</b>	<b>7393001</b>	
	Evaporation or Lyophilization	Water	Small Rotary Vane	<b>1472100</b>	<b>7739402</b>	
		Acids & Solvents	Hybrid	<b>7584000</b>	<b>7584002</b>	
			Scroll	<b>7587100</b>	<b>7587100</b>	
 <b>Benchtop, Refrigerated, or Acid</b>	Evaporation	Any, Small Volumes	Small Diaphragm	<b>7359020</b>	<b>7359030</b>	Glass trap
		Any, Large Volumes	Large Diaphragm	<b>7393000</b>	<b>7393001</b>	
	Evaporation or Lyophilization	Water	Small Rotary Vane	<b>1472100</b>	<b>7739402</b>	Mechanical cold trap required
		Acids & Solvents	Hybrid	<b>7584000</b>	<b>7584002</b>	Mechanical cold and glass traps required
			Scroll	<b>7587100</b>	<b>7587100</b>	
 <b>DNA</b>	Evaporation	Any	Included			2 Glass traps included
 <b>Micro IR</b>	Evaporation	Any	Included			Glass trap included
 <b>Complete</b>	Evaporation	Any	Included			Mechanical cold and glass traps required





### Dry Evaporators

Model	Application	Sample Type	Pump Type	Recommended Pump		Recommended Trap
				115 Volts	230 Volts	
 <b>Vacuum</b>	Evaporation	Any	Large Diaphragm	<b>7393000</b>	<b>7393001</b>	Optional Trapping Valve 7348000 is required with mechanical cold trap
			Scroll	<b>7587000</b>	<b>7587000</b>	
				<b>7587100</b>	<b>7587100</b>	


# Vacuum Pumps

## Selection Guide

### Freeze Dryers

Model	Application	Sample Type	Pump Type	Recommended Pump		Recommended Trap
				115 Volts	230 Volts	
 <b>Benchtop 2.5, 4.5, 6 &amp; 8 Liter or Dry Ice</b>	Lyophilization	Water	Small Rotary Vane	<b>1472100</b>	<b>7739402</b>	Collector included
		Acids & Solvents	Combination	<b>7584000</b>	<b>7584002</b>	
			Scroll	<b>7587100</b>	<b>7587100</b>	
 <b>Console 6, 12 &amp; 18 Liter</b>	Lyophilization	Water	Rotary Vane	<b>1467700</b>	<b>7739403</b>	Collector included
		Acids & Solvents	Combination	<b>7584000</b>	<b>7584002</b>	
			Scroll	<b>7587000</b>	<b>7587000</b>	
 <b>Console 6, 12 &amp; 18 Liter with Bulk Tray Dryer, Stoppering Tray Dryer, or Tall Clear Chamber</b>	Lyophilization	Water	Large Rotary Vane		<b>7739403</b>	Collector included
		Acids & Solvents	Scroll	<b>7587000</b>	<b>7587000</b>	
 <b>Triad</b>	Lyophilization	Water	Rotary Vane		<b>7739403</b>	Collector included
		Acids & Solvents	Combination		<b>7584002</b>	
			Scroll		<b>7587000</b> <b>7587100</b>	

### Glove Boxes

Model	Application	Sample Type	Pump Type	Recommended Pump		Recommended Trap
				115 Volts	230 Volts	
 <b>Controlled Atmosphere</b>	Atmosphere Control	Any	Small Rotary Vane	<b>1472100</b>	<b>7739400</b> <b>7739402</b>	None
	Drying Train Moisture & Oxygen Removal	Any	Scroll	<b>5248200</b>	<b>5248201</b>	

# Vacuum Pumps

## Ordering Information



### Rotary Vane

Catalog Number	Electrical Configuration	Ultimate Vacuum (Partial Pressure)	Displacement at 60 Hz L/min	Vacuum Outlet	Shipping Weight
<b>1472100</b>	115V, 50/60 Hz, 4.6A	$2 \times 10^{-3}$ mBar (1.5 micron)	117	1/2" or 3/4" OD	62 lbs. (28 kg)
<b>7739402*</b>	230V, 50/60 Hz, 2.4A	$2 \times 10^{-3}$ mBar (1.5 micron)	117	1/2" or 3/4" OD	62 lbs. (28 kg)
<b>1467700</b>	115V, 50/60 Hz, 7.8A	$2 \times 10^{-3}$ mBar (1.5 micron)	195	1/2" or 3/4" OD	65 lbs. (30 kg)
<b>7739403*</b>	230V, 50/60 Hz, 4.0A	$2 \times 10^{-3}$ mBar (1.5 micron)	195	1/2" or 3/4" OD	65 lbs. (30 kg)



### VACUUBRAND HYBRID\*\*

Catalog Number	Electrical Configuration	Ultimate Vacuum (Partial Pressure)	Displacement at 60 Hz L/min	Vacuum Outlet	Shipping Weight
<b>7584000</b>	115V, 50/60 Hz, 5.7A	$2 \times 10^{-3}$ mBar (1.5 micron)	115	3/4" OD	66 lbs. (30 kg)
<b>7584002*</b>	230V, 50/60 Hz, 2.7A	$2 \times 10^{-3}$ mBar (1.5 micron)	115	3/4" OD	66 lbs. (30 kg)



### Scroll

Catalog Number	Electrical Configuration	Ultimate Vacuum (Partial Pressure)	Displacement at 60 Hz L/min	Vacuum Outlet	Shipping Weight
<b>7587000</b>	115/230V, 50/60 Hz, 10/6A (Includes NEMA 5-15P and reverse IEC)	$7 \times 10^{-3}$ mBar (5.3 micron)	190	3/4" OD	59 lbs. (27 kg)
<b>7587100</b>	115/230V, 50/60 Hz, 10/6A (Includes NEMA 5-15P and reverse IEC)	$2 \times 10^{-2}$ mBar (15 micron)	103	3/4" OD	59 lbs. (27 kg)



### Diaphragm

Catalog Number	Electrical Configuration	Vacuum	Displacement at 60 Hz L/min	Vacuum Outlet	Shipping Weight
<b>7359020</b>	115V, 50/60 Hz, 3.4A	7 mBar	38	1/2" OD	38 lbs. (15 kg)
<b>7359030</b>	230V, 50/60 Hz, 1.8A	7 mBar	38	1/2" OD	38 lbs. (15 kg)
<b>7393000</b>	115V, 60 Hz, 4.0A	1.5 mBar	63	1/2" OD	40 lbs. (18 kg)
<b>7393001</b>	230V, 50/60 Hz, 3.0A	1.5 mBar	63	1/2" OD	40 lbs. (18 kg)

### Pressure/Vacuum Conversion Factors

mBar	micron	Torr	psi
Torr x 1.33 inches Hg. vac. (absolute) x 33.86	Torr x 1000	mBar x 0.75	Inches Hg vac. (absolute) x 0.491

\*Has reverse IEC plug

\*\*VACUUBRAND HYBRID™ is a trademark of VACUUBRAND GMBH + CO KG.



# Vacuum Pump Accessories

## Ordering Information

### Rotary Vane and Combination



**1472200—Inlet Filter.** For rotary vane pumps 1472100, 7739400, 7739402, 1467700, 7739401 and 7739403. Prevents backstreaming and protects the pump from submicron particle damage. Includes filter assembly and one filter cartridge. Life is approximately 1000 hours at  $1.33 \times 10^{-2}$  mBar (10 microns) vacuum. Shipping weight 1.0 lb. (0.5 kg)



**7584300—VACUUBRAND\*\* B-Oil.**

One liter. Replacement for combination pumps 7584000 and 7584002. Shipping weight 2.0 lbs. (0.9 kg)



**7541300—Vacuum Pump Oil.** One gallon (3.8 L) synthetic hydrocarbon oil. Shipping weight 12 lbs. (5 kg)

**1473500—Oil Return Kit.** Allows extended operation of the pump with the ballast open and helps to keep oil purged of contaminants. Consists of a stainless steel cylinder and tubing with clamp. When the excess oil collects in the filter, it is directed back to the pump to conserve oil. Shipping weight 0.5 lb. (0.2 kg)



1988000

**Vacuum Pump Oil.** Hydro-treated paraffinic hydrocarbon replacement oil. For rotary vane pumps 1472100, 7739400, 7739402, 1467700, 7739401 and 7739403.

**1988000—One liter.**

Shipping weight 2.0 lbs. (0.9 kg)

**1988001—One gallon (3.8 L).**

Shipping weight 12 lbs. (5 kg)



**1472500—Replacement Inlet Filter Cartridge.** For 1472200. Shipping weight 0.5 lb. (0.2 kg)



**1473400—Replacement Exhaust Filter.** For rotary vane pumps 1472100, 7739400, 7739402, 1467700, 7739401 and 7739403. Removes oil mist and odor from pump exhaust. Ducting to outside not required. Includes filter assembly, one oil mist filter cartridge and one odor filter cartridge. Oil mist filter cartridge life is approximately one year and odor filter cartridge life is approximately six months at  $1.33 \times 10^{-2}$  mBar (10 microns) vacuum. Shipping weight 1.0 lb. (0.5 kg)



**1473200—Replacement Oil Mist Exhaust Filter Cartridge.**

For 1473400. Life is approximately one year at  $1.33 \times 10^{-2}$  mBar (10 microns) vacuum. Shipping weight 0.5 lb. (0.2 kg)



**1473300—Replacement Odor Exhaust Filter Cartridge.** For 1473400. Life is approximately one year at  $1.33 \times 10^{-2}$  mBar (10 microns) vacuum. Package of five. Shipping weight 0.5 lb. (0.2 kg)

### Scroll

**7587300—Pump Silencer.** Filters exhaust while silencing exhaust pump noise. Includes filter, centering ring and clamp to attach to exhaust outlet. Shipping weight 2.0 lbs. (0.9 kg)

**7587400—Pump Silencer Replacement Filter.** For 7587300. Shipping weight 2.0 lbs. (0.9 kg)

**7587200—Tip Seal Replacement Kit.** Includes two tip seals, two o-rings, exhaust valve and spring and other small components. Shipping weight 2.0 lbs. (0.9 kg)

**7587500—Bearing Replacement Service Kit.** Includes contact bearings, shaft end cap, washers, screws, plugs and o-rings. Shipping weight 2.0 lbs. (0.9 kg)

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Printed in the U.S.A.

Product design subject to change without notice.

3-25-2/13/23

