

FR Freeze Dryers

Freeze Dry System Guide

Freeze Dryer.....646-648

Provides refrigeration and monitors vacuum to enable lyophilization. Sublimated solvent (e.g. water) accumulates on a collector in the unit. Capacity is measured as daily sublimation rate (L H₂O/day) and water volume capacity prior to defrosting. Units are available with Teflon® coating for corrosive samples.

Drying Platform..... 647-648

Interfacing device that conducts solvent from the sample to the freeze dryer and may connect or hold sample containers.

Platform Types:

Chamber—Either accommodates sample shelving or provides flexible port connectivity for up to 12 or 16 sample flasks. Shelves may be used for either bulk samples or bottles and are available with heaters to accelerate the freeze drying process.

Manifold—For parallel lyophilization using small containers.

Stoppering Tray Dryer—For batches of small vessels or bulk sample on shelves. Vessels are then vacuum sealed in situ.

Vacuum Pump.....648

Select standard or chemical-resistant model. May be protected with a secondary cold trap when drying samples containing organic solvents or corrosives.

Sample Containers..... 648

Sturdy, borosilicate glass vessel options include flasks, serum bottles, vials, and ampules.

Shell Freezer..... 648

For preliminary freezing of samples. Improves freeze drying efficiency by maximizing sample surface area in cylindrical Fast-Freeze flasks. Available as stand-alone or integrated unit.

LABCONCO FreeZone® Personal Freeze Dry Systems

Economical sample preservation—even with low-melting point solvents

- Convenient for small batch sizes
- Cascade cooling models lyophilize to -84°C

Protect your sensitive samples from solvent-induced degradation and structural change. Remove solvents (e.g. water) from vulnerable samples simply and efficiently. Personal freeze dry systems enable preservation of chemical and biological specimens in small sample, sporadic use (e.g. HPLC fraction preservation), or budget-constrained applications.

1-Liter Freeze Dry Systems feature robust refrigeration (to -50°C), sophisticated process monitoring, and spatially efficient design. Systems can remove 1 L of water in 24 hours; collector (ice) capacity is 1 L of water prior to defrosting. Vacuum and temperature LCD readings are available at a glance in user-designated units. Cumulative component service intervals are displayed to enable proper maintenance. Defrosting is manual using a retractable drain line. Units have glacier-white epoxy-coated exteriors with stainless steel front panel, collector chamber, and coils. Optional PTFE-coated chamber and coils enable lyophilization using corrosive solvent media.

2.5-Liter Freeze Dry Systems extend the capability of the 1-L units to enable removal of 2 L of water in 24 hours, with 2.5-L ice accumulation before defrosting is required. Cool the collector to -50°C for routine freeze drying or lyophilize samples containing low-melting point solvents using a cascade model to -84°C. Download data via RS-232 connection. Alarms and programmed power-interruption protocols guard both your samples and your equipment. Control valve maintains vacuum setpoint to speed and enhance the freeze dry process. Available as compact benchtop unit or console model that can accommodate vacuum pump (sold separately).

Required additional components include a drying platform to enable application-specific sample support and containerization (See "Required System Components" at right). Call our Application Specialists for further guidance in selecting system components.

Specifications & Ordering Information

ISO9001:2000
CERTIFIED SUPPLIER



Sublimation rate	Ice capacity	Dimensions (W x H x D)	Power (VAC, Hz)	Amps	Stainless steel interior		PTFE interior	
					Cat. no.	Price	Cat. no.	Price
1-L benchtop freeze dryers, -54°C (-65°F)								
1 L H ₂ O/day	1 L H ₂ O/day	12" x 16¾" x 17⅝"	115, 60 220, 50 208, 60	6 3 3	KH-03337-00 KH-03337-10 KH-03337-20		KH-03337-05 KH-03337-15 KH-03337-25	
2.5-L benchtop freeze dryers, -54°C (-65°F)								
2 L H ₂ O/day	2.5 L H ₂ O/day	12" x 16¾" x 23¼"	115, 60* 220, 50 208, 60	6 3 3	KH-03338-00 KH-03338-10 KH-03338-20		KH-03338-05 KH-03338-15 KH-03338-25	
2.5-L benchtop cascade freeze dryers, -84°C (-119°F)								
1.8 L H ₂ O/day	2.5 L H ₂ O/day	14½" x 16¾" x 23¼"	115, 60* 220, 50 208, 60	10.5 5.3 5.3	KH-03339-10 KH-03339-20 KH-03339-30		KH-03339-15 KH-03339-25 KH-03339-35	
2.5-L console cascade freeze dryers, -84°C (-119°F)								
1.8 L H ₂ O/day	2.5 L H ₂ O/day	18" x 36⅝" x 23¼"	115, 60* 220, 50 208, 60	10.5 5.3 5.3	KH-03339-40 KH-03339-50 KH-03339-60		KH-03339-45 KH-03339-55 KH-03339-65	

*Includes 20 A plug

GO to ColeParmer.com

ColeParmer.com/FreezeDryers

Even MORE online!

Look for new items, stock status, technical info, etc.



1-L FreeZone freeze dryer 03337-00
with 12-port drying chamber 03346-01

Required System Components

- 1 Freeze dryer.....646-647
- 2 Drying platform.....647-648
- 3 Vacuum pump.....648
- 4 Glassware.....648

Add these options

- 5 Optional shell freezer..... 648

LABCONCO FreeZone® Freeze Dry Systems

Efficient lyophilization for your lab or process

Use these freeze dry systems to remove moisture without changing the structure and activity of your samples. Applications include sample preservation and concentration, electron microscopy preps, and HPLC fraction preservation.

Dryers are engineered with oversized CFC-free refrigeration systems, stainless steel condenser coils, epoxy-coated steel cabinets, and ¾"-thick phenolic work surfaces. Freeze dryers feature push-button control panel, simple defrosting, indicator lights, and both an LCD and a dual LED graphic display of vacuum and condenser temperatures. Alarms alert you to power interruptions, servicing needs, and other events. Integrated moisture sensor helps protect your vacuum pump. Use the RS-232 interface for connection to computer or recorder.

Choose from benchtop or mobile console styles, in 4.5-L or 6-L sizes. See "Required System Components" for application-specific configurations or call our Application Specialists for further guidance in selecting system components.

Specifications & Ordering Information



Catalog number	Description	Dimensions (W x H x D)	Sublimation rate	Ice capacity	Shpg wt lb (kg)	Power (VAC, Hz)	Price
Benchtop freeze dryers, -54°C (-65°F)							
KH-03336-05	4.5-liter model with ten-port drying chamber	18" x 22½" x 18½"	2 L H ₂ O/day	4.5 L H ₂ O/day	122 (55.4)	115, 60 220, 50	
KH-03336-00							
KH-03336-20	6-liter model	31⅞" x 14⅞" x 22⅞"	4 L H ₂ O/day	6 L H ₂ O/day	170 (77.1)	115, 60 220, 60	
KH-03336-25							
Console freeze dryers, -54°C (-65°F)							
KH-03336-15	4.5-liter model with ten-port drying chamber	18" x 48¼" x 24"	2 L H ₂ O/day	4.5 L H ₂ O/day	122 (55)	115, 60 220, 50	
KH-03336-10							
KH-03336-55	6-liter model with defroster	31⅞" x 36½" x 28"	4 L H ₂ O/day	6 L H ₂ O/day	306 (138.8)	115, 60 220, 50	
KH-03336-30							



03336-20
with 20-port
manifold 03348-31

Required System Components

- 1 Freeze dryer646-647
- 2 Drying platform647-648
- 3 Vacuum pump648
- 4 Glassware.....648

Add these options

- 5 Optional shell freezer..... 648

LABCONCO Platforms for FreeZone® Freeze Dry Systems



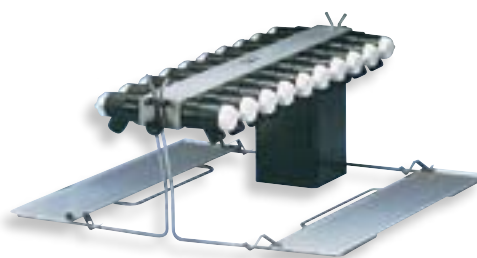
Standard
drying chamber
03346-11

Drying Chambers

Standard chambers with 12 or 16 ports accommodate any size glassware. Heated chambers feature three drying shelves and heat to 43°C (110°F) to accelerate bulk or batch drying. Chambers have 304 stainless steel body and clear acrylic cover. Order shelves for standard chambers separately—call our Application Specialists.

Specifications & Ordering Information

Catalog number	Description	Price
Standard drying chambers with ports and no shelves		
KH-03346-01	12 ports	
KH-03346-11	16 ports	
Heated drying chambers with no ports and three shelves		
KH-03347-00	115 VAC	
KH-03347-05	220 VAC	



Manifold
03348-21

Manifolds

Stainless steel manifolds are ideal for freeze-drying contents of serum vials, ampules, or small flasks. Models 03348-11 and 03348-21 fit 6-liter dryers only. Model 03348-11 includes one adjustable support shelf; model 03348-21 comes with two adjustable support shelves; model 03348-31 has no shelf.

Specifications & Ordering Information

Catalog number	Ports	Dimensions (W x H x D)	Price
KH-03348-11	10	26" x 10 x 6⅞"	
KH-03348-21	20	26" x 10 x 9½"	
KH-03348-31	20	19" x 9" x 5"	

Clear Drying Chambers

Use acrylic chambers with aluminum tops to accommodate three-shelf sample stands (order separately below) for bulk freeze drying process with visual monitoring. Select model 03337-66 for up to eight additional valved ports (e.g. for Fast-Freeze® flasks). Three-shelf stands are independently height adjustable. Available for ambient temperature use (vials, serum bottles, and bulk samples) or heated (to 40°C, variable temperature controlled) to accelerate freeze drying of bulk samples.



Clear drying
chamber 03337-66

Specifications & Ordering Information

Catalog number	Ports	Dimensions (H x dia)	Price
KH-03337-66	8	12¼" x 14⅞"	
KH-03337-64	—	13⅞" x 10⅞"	

[KH-03337-58](#) Three-shelf sample stand; non-heated, 9⅞" x 7¼"

[KH-03337-52](#) Three-shelf sample stand; heated, 120 VAC, 9⅞" x 7¼"

[KH-03337-54](#) Three-shelf sample stand; heated, 220 VAC, 9⅞" x 7¼"

FR Freeze Dryers

Accessories for LABCONCO FreeZone® Freeze Dry Systems

Vacuum Pump

Required for all freeze dryers. Pump fits inside console dryer cabinets. Ultimate vacuum (with gas ballast) is 6.0×10^{-2} mbar; pumping capacity is 167 L/min. Maximum water vapor handling rate: 0.22 kg/hr.



79303-20

Catalog number	Power	Price
KH-79303-20	110/220 VAC, 50/60 Hz	

Chemical-Resistant Vacuum Pump

- Enables freeze drying with aggressive solvents—TFA and more!



79203-80

Efficient pumps use integrated oil filtration/acid neutralization systems to operate in demanding chemical environments. Ultimate vacuum (partial pressure) is 1.3×10^{-4} mbar. Pumping capacity at 60 Hz is 173 L/min.



Catalog number	Power	Price
KH-79203-80	110/120 VAC, 50/60 Hz	
KH-79203-85	200/230 VAC, 50/60 Hz	

GO to page(s) 1914 to 1936

For more vacuum pumps and accessories, see pages 1914 to 1936.

Benchtop Shell Freezer

Prefreeze samples for more efficient freeze drying. Sample containers are rotated in a low-temperature heat transfer solution. This coats the inner surface of the sample container with a uniformly thin layer of the sample, facilitating more efficient vapor flow during the freeze drying process.

A ¼-hp, CFC-free refrigeration system cools the heat transfer solution to below -40°C. Freezer accommodates sample containers up to 1200 mL in volume; compartment dimensions are 12"L x 5½"W x 6½"H. Overall dimensions are 14½"W x 19¼"H x 22½"D.

What's included: an 8-ft, three-wire cord; 115 VAC model comes with plug.



Catalog number	Power	Price
KH-03349-40	115 VAC, 60 Hz	
KH-03349-45	220 VAC, 50 Hz	



03349-40

Fast-Freeze® Flasks

Made from borosilicate glass with silicone rubber tops. Wide mouth design. Order adapters separately below.



Fast-Freeze® flasks

Catalog number	Capacity	Adapter	Price
KH-03353-00	40 mL	½" dia	
KH-03353-01	80 mL	½" dia	
KH-03353-02	120 mL	¾" dia	
KH-03353-03	150 mL	¾" dia	
KH-03353-04	300 mL	¾" dia	
KH-03353-05	600 mL	¾" dia	
KH-03353-07	1200 mL	¾" dia	
KH-03353-08	2000 mL	¾" dia	

Adapters for flasks (not pictured)

Catalog number	FlasKH-to-valve dia	Price
Straight glass adapters		
KH-03354-00	½" to ½"	
KH-03354-01	¾" to ¾"	
KH-03354-02	½" to ¾"	
45° glass adapters		
KH-03354-10	½" to ½"	
KH-03354-11	¾" to ¾"	
KH-03354-12	½" to ¾"	
Straight stainless steel adapters		
KH-03354-30	½" to ½"	
KH-03354-31	¾" to ¾"	

Stoppering Tray Dryer

Use to lyophilize bulk products or batch samples in bottles, vials, or ampules. Works with 6-, 12-, or 18-liter freeze dryers only. Tray dryer contains three shelves, each with 196 sq in. of space. Samples can be prefrozen directly on the shelves.

Digital display indicates system and sample temperatures. Dryer features temperature ramp/hold programming (five segments). Temperature is controlled from -40 to 40°C (40 to 104°F) with an accuracy of $\pm 1.0^\circ\text{C}$. Dryer comes with a support stand for connection to freeze dryers; the optional support shelf 03352-31 comes with six valves letting you also process Fast-Freeze® flasks.

What's included: an 8-ft three-wire cord and plug. Measures 32"W x 27½"H x 24½"D.



03336-97

ISO9001:2000
CERTIFIED SUPPLIER



Catalog number	Power (VAC/Hz)	Shpg wt lb (kg)	Price
KH-03336-97	115/60		
KH-03336-95	220/50	280 (127)	

Technical info

Stoppering Vials—When lyophilization is completed, vacuum is maintained. A diaphragm at the bottom of the dryer progressively lifts each shelf upward, forcing vial/bottle caps shut for vacuum sealing.

