

FreeZone® Triad® Benchtop Freeze Dryers



The considerate freeze dryer.

Your samples are our motivation. Because we know how much freeze drying matters. Tissue research. Drug discoveries. Vaccine development. Lives saved.

Your freeze dried samples may need to be stoppered in vials under vacuum. Or you may have a variety of samples on trays and in flasks. If so, consider the FreeZone® Triad®.

Triad makes selecting the right freeze dryer system easy. How? By combining a benchtop lyophilizer with a built-in stoppering tray dryer for vials and four port manifold for flasks. Its -85° C collector can handle either aqueous or dilute acetonitrile samples. Add a vacuum pump and you're ready to go. Ready to start your work.

As we've done since 1974, we build each FreeZone by hand. With care. And the highest quality materials. Your Triad will last and last.

We considered everything. All in one system. Versatile sample handling. Durability. Triad.

The LABCONCO logo is centered at the bottom of the page. It consists of the word "LABCONCO" in a bold, white, sans-serif font, with a registered trademark symbol (®) to the right. The text is set against a dark blue, horizontally-oriented oval background. This oval is itself centered within a larger, lighter blue, downward-pointing triangular shape that forms the bottom edge of the page's design.

LABCONCO®

Lyo-Works™ Operating System

Features & Benefits

Programs

Lets you create, edit, view and initiate programs. Stores up to 30 programs with up to 16 steps each. Each step may include ramp rate, shelf temperature, hold time and vacuum.

Data Logging

Starts/stops logging. View the data in table or graph form.

Settings

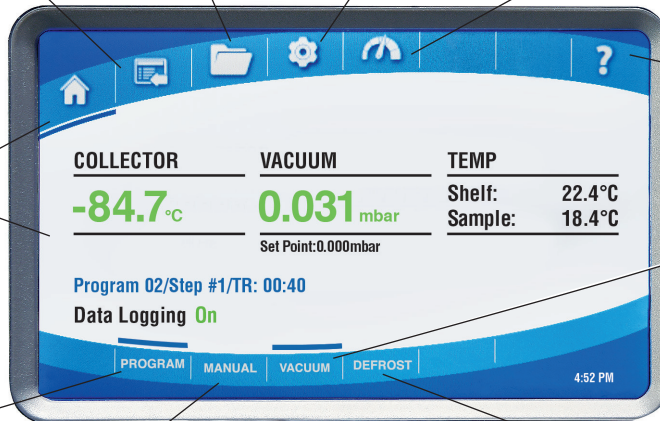
Select language, security code, sensor calibration, time/date/time zone, alert emails and more.

Sensors

Displays temperature values for collector, vacuum, shelf and sample sensors.

Home

Get at-a-glance collector temperature, vacuum pressure, shelf and sample temperature, program step and data logging mode.



Help

Access diagnostic tools.

Vacuum Button

Manually starts/stops the vacuum pump or change the vacuum set point.

Program Button

Opens the Programs screen.

Manual Button

Manually starts/stops the collector and shelf temperature control. Select from three modes: shelf to Max Cold, freeze dry flasks only, and maintain shelf temperature to set point.

Defrost Button

Manually starts/stops defrost. Automatically turns off when collector reaches +60° C or after two hours of defrost.

Lyo-Works is more than a large touch screen display. It's a set of powerful controls and useful insights about your freeze drying process. You'll experience peace of mind about the integrity of your samples throughout lyophilization, even when you're not in the lab.

Lyo-Works lets you monitor, record and store the condition of your samples.

- Real time on-screen tables and graphs to immediately show sample status so you can make adjustments if needed

- Data and program storage for repeatability of protocols
- Data transfer via Ethernet or USB port (no additional recorders or computers needed)

Your samples and time are valuable. Find out how your samples are doing every step of the way from your smartphone—at work or away.

- Get email updates on your samples' status
- Get email notifications when your freeze dryer's set points are outside of normal range

FreeZone® Triad® Benchtop Freeze Dryers

Features & Benefits



❖ Pneumatic mechanism stoppers containers on shelf

Containers are stoppered while chamber is under vacuum and without the use of compressed gas. Atmospheric pressure causes the diaphragm to expand. The pressurized diaphragm forces the plate down, pushing the stoppers into the containers.

❖ Environmentally-safe refrigeration

Two compressors cool the collector coil to -85°C (-121°F), ideal for samples with low eutectic points including dilute acetonitrile. Refrigeration and heat alter the temperature of fluid circulating through channels in the shelf. Shelf may be set to pre-freeze and then to lyophilize. Safe refrigerant is non-flammable and does not contain hydrochlorofluorocarbons (HCFCs) or chlorofluorocarbons (CFCs) that can damage the ozone.

Four valve ports

Versatile Triad lets you freeze dry samples in flasks and on the shelf at the same time.

Pre-freeze samples to save money and time

Samples may be frozen on the shelf at a controlled rate, eliminating the need for a separate freezer and product transfer.



❖ Collector drain pan and hose

Stainless steel drain pan catches defrosted condensate. Remove the pan for cleaning.



❖ Labconco exclusive feature

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Specifications

Application suitability:

- Small sample loads or numerous sample batches containing water or acetonitrile
- Stoppering vials or serum bottles under vacuum
- Limited floor space

All models feature:

- * Stainless steel collector coil capable of removing 1.84 L of water in 24 hours and holding 2.5 L of ice before defrosting*
- * Two 1/3 hp HCFC/CFC-free refrigeration compressors cool the collector to -85° C (-121° F) and work in concert with a 1000-watt heater to cool and heat fluid medium circulating through channels in the shelf. Not for use with samples containing methanol or ethanol
- Processing shelf, 12.4" w x 14.5" d (31.5 x 36.8 cm). Spacing between shelf and top of chamber accommodates containers with stoppers up to 148 mm maximum height
- One probe for monitoring temperature of sample in chamber
- Pirani vacuum sensor
- Temperature ramp and hold programming from -55° C to +50° C (-67° F to +122° F) and -75° C (-103° F) during pre-freezing. Controls temperature to ±1° C of set point. Memory to store 30 programs with 16 segments each including number of steps, ramp rate, shelf temperature, hold time and vacuum level
- * Full color, 5" capacitive touch screen with Lyo-Works OS:
 - Real time display of collector temperature and vacuum level
 - Creation and storage for up to 30 programs with up to 16 steps each. Ability to set ramp rate, shelf temperature, shelf temperature time and vacuum set point per step
 - Manual start-up buttons for collector and shelf temperature control and vacuum pull down
 - Alerts, diagnostic tests, user manual and defrost control
 - Data logging stores and displays data in table or graph format, and may be exported via USB or Ethernet
 - Settings include language (English, Spanish, French, German, or Italian), time, temperature (° C or ° F) and vacuum (mBar, Torr or Pa)
 - Alerts can be emailed to user-entered addresses via Ethernet connection
 - Vacuum pump maintenance alert
 - Security lock-out
- * Pneumatic stoppering mechanism with diaphragm and plate. **No compressed gas is required**



- Stoppering control knob, vacuum release control knob and 1/8" OD user-supplied sterile/inert gas backfill port
- Four left side-mounted neoprene valves with molded plastic knobs and fittings that accommodate 1/2" and 3/4" flask adapters
- * USB port and Ethernet connection
- Electrical receptacle for vacuum pump
- Hot gas defrost with stainless steel drain pan, silicone drain hose and auto shut off at +60° C (+140° F)
- Vacuum control valve
- * Vacuum break valve
- Stainless steel and powder-coated steel exterior
- Clear acrylic door, 1" thick, with silicon gasket and latch
- 3/4" OD vacuum connection. 36" long, 3/4" ID vacuum hose with two clamps

Standards conformance & regulations:

- UL Standard 61010-1 (115/230V, 60 Hz models)
 - CAN/CSA C22.2 No. 61010-1 (115/230V, 60 Hz models)
 - CE Conformity marking (230V, 50 Hz models)
- △**WARNING:** Cancer - P65Warnings.ca.gov (California only)

Options include:

- Region-specific electrical plug configurations

All models require (not included):

- Vacuum pump with a displacement of at least 98 L/min, 0.002 mBar ultimate pressure and fitting for 3/4" ID vacuum hose. See page 7
- Freeze dry glassware if not bulk freeze drying



Serum Bottle Capacity

Catalog Number	26675-699	26675-701	26675-685	26675-687	26675-689	26675-691	26675-693	26675-695	26675-697
Volume	2 ml	3 ml	5 ml	10 ml	20 ml	30 ml	50 ml	100 ml	125 ml
Shelf Capacity	400	441	233	196	121	86	64	42	36

* Freeze drying rate will be lower for samples other than plain water. For optimum performance, room temperature should be 21° C (70° F) or colder.

* Labconco exclusive feature

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Ordering Information



Catalog Number Configurator:

Use this key to configure the nine digit catalog number to order your FreeZone Triad Benchtop Freeze Dryer.

7 9 4 0 0 1 0

Select the **ELECTRICAL CONFIGURATION** and **PLUG TYPE** of your freeze dryer. These are the eighth and ninth digits of your catalog number.

- 10** = 230V, 60 Hz, 12A with plug for North America
- 15** = 230V, 60 Hz, 12A with plug for Saudi Arabia
- 30** = 230V, 50 Hz, 12A with Schuko plug
- 40** = 230V, 50 Hz, 12A with plug for China/Australia
- 50** = 230V, 50 Hz, 12A with plug for Great Britain (UK)
- 70** = 230V, 50 Hz, 12A with plug for India

Plug Configurations



230V, 60 Hz
for North America



230V, 60 Hz
for Saudi Arabia



230V, 50 Hz
Schuko



230V, 50 Hz
for China/Australia



230V, 50 Hz
for Great Britain (UK)



230V, 50 Hz
for India

Actual Dimensions & Shipping Weight

28.3" x 29.5" x 27.7" (71.9 x 74.9 x 70.4 cm) 440 lbs. (200 kg)

Vacuum Pumps

Selection Guide & Ordering Information

The Rotary Vane, Combination and Scroll Vacuum Pumps provide the deep vacuum needed for good freeze drying results.

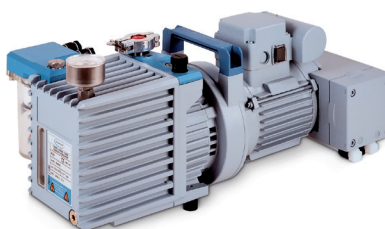
Find the recommended Rotary Vane, Combination and/or Scroll Vacuum Pump for your Triad based on your sample type.

Sample Contains	Pump Type	Recommend Pump (≥ 98 lpm)*	Recommended Pump (≥ 163 lpm)
Water	Rotary Vane	26671-492	26671-494
Acids & Solvents	Combination	97043-434	—
	Scroll	—	75796-642

Rotary Vane



Combination



Scroll



General Purpose Rotary Vane Vacuum Pumps

For use with aqueous samples. Ultimate vacuum (total pressure) 2×10^{-3} mBar (1.5 micron). With cast aluminum casing, rubber feet, lifting bracket, on/off switch, two inlet adapters (1/2" and 3/4" OD). Two position selector: High Vacuum and High Throughput. Three position gas ballast: Closed, Low Flow and High Flow. Single phase direct drive motor, totally enclosed and fan cooled, with thermal overload protection. Isolation valve seals the inlet to prevent oil and air contamination of the system in the event of power failure. Include 230V reverse IEC plug, four each one liter bottles of vacuum pump oil and one exhaust filter with oil mist and odor filter elements.

as HPLC-prepared and peptide purified materials. Two-stage rotary vane pump and two-stage, chemical-resistant diaphragm pump. Diaphragm pump removes the condensable vapors in the rotary vane pump before they can contaminate the oil, to extend oil and pump life. Pump oil lasts up to 10 times longer than in conventional rotary vane pumps. Ultimate vacuum (partial pressure) 2×10^{-3} mBar (1.5 micron). Pressure control valve compensates for the different volumes displaced by the two pumps. Glass separator captures downstream condensate vapors. Includes 230V reverse IEC plug, lifting handle, 3/4" OD inlet adapter, one liter bottle of vacuum pump oil, power switch, power cord and plug. 115 (98) L/min displacement at 60 Hz (50 Hz). Operates on 230V, 50/60 Hz, 2.7A. Shipping weight 66 lbs. (30 kg)

Catalog Number	Electrical Configuration	Displacement at 60 Hz (50 Hz) L/min	Shipping Weight
26671-492	230V, 50/60 Hz, 2.4A	117 (98) L/min	62 lbs. (28 kg)
26671-494	230V, 50/60 Hz, 4.0A	195 (163) L/min	65 lbs. (30 kg)

97043-434—VACUUBRAND HYBRID** Combination Vacuum Pump

For use with acids and other harsh chemicals including TFA, TFA by-products, acetonitrile, HBe and HNO_3 present in samples such

75796-642—Scroll Vacuum Pump

For use with acids below 20% concentration and solvents including acetonitrile. Low maintenance, longer lasting. Does not require oil for lower lifetime operation costs, less maintenance is needed compared to oil pumps. Lubrication-free, hermetically-free environment for totally clean and dry vacuum. Two spiral scrolls compress air and vapors to move them toward the exhaust. Ultimate vacuum (partial pressure) 2×10^{-3} mBar (5.3 micron). Quiet operation of <52 dB(A). Glass separator captures downstream condensate vapors. Includes 3/4" inlet adapter, power switch, power cord and plug. 190 L/min displacement. Operates on 230V, 50/60 Hz, 2.7A. Shipping weight 59 lbs. (27 kg)

*Faster freeze drying rates may be achieved by using pumps with larger displacement capacities.

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

Vacuum Pumps

Accessories

26671-506—Inlet Filter. For Rotary Vane Pumps 26671-492 and 26671-494. Prevents oil back streaming and prevents submicron particle damage. Includes filter assembly and one filter cartridge. Life is approximately 1000 hours at 1.33×10^{-2} mBar (10 microns) vacuum. Shipping weight 1.0 lb. (0.5 kg)

10148-030—Replacement Exhaust Filter. For Rotary Vane Pumps 26671-492 and 26671-494. Removes oil mist and odor from exhaust. Includes filter assembly, one oil mist filter cartridge and one odor filter cartridge. Oil mist filter life approximately one year and odor filter cartridge life approximately six months at 1.33×10^{-2} mBar (10 microns) vacuum. Shipping weight 1.0 lb. (0.5 kg)

10033-174—VACUUBRAND* B-Oil. One liter. Replacement oil for Combination Vacuum Pumps 7584000 and 97043-434. Shipping weight 2.0 lbs. (0.9 kg)

97109-880—Vacuum Pump Oil. One gallon (3.8 L) synthetic hydrocarbon oil. Shipping weight 12 lbs. (5 kg)

Vacuum Pump Oil. Hydro-treated paraffinic hydrocarbon oil. Replacement oil for Rotary Vane Pumps 26671-492 and 26671-494.

Catalog Number	Volume	Shipping Weight
10148-028	One liter	2.0 lbs. (0.9 kg)
10030-126	One gallon (3.8 L)	12 lbs. (5 kg)

75796-646—Oil Return Kit. Allows extended operation of the pump with the ballast open and helps to keep oil purged of contaminants. When excess oil collects in the filter, it is directed back to the pump to conserve oil. Stainless steel cylinder and tubing with clamp. Shipping weight 0.5 lb. (0.2 kg)

75796-644—Pump Silencer. For Scroll Pump 75796-642. Filters exhaust and silences exhaust pump noise. Includes filter, centering ring and exhaust outlet clamp. Shipping weight 2.0 lbs. (0.9 kg)

Contact VWR to order—Tip Seal Replacement Kit. For Scroll Pump 75796-642. Includes two tip seals, two o-rings, exhaust valve and spring and other small components. Shipping weight 2.0 lbs. (0.9 kg)

Contact VWR to order—Bearing Replacement Service Kit. For Scroll Pump 75796-642. Includes contact bearings, shaft end cap, washers, screws, plugs and o-rings. Shipping weight 2.0 lbs. (0.9 kg)

10148-062—Wire-Reinforced PVC Tubing. 3/4" ID. 3' length. Shipping weight 5.0 lbs. (2.3 kg)

⚠**WARNING:** Cancer - P65Warnings.ca.gov (California only)

Visit vwr.com for ordering information on serum bottles, vials, flasks, carts and other accessories.

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



LABCONCO CORPORATION

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Kansas City, MO 64132



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