

*GENESIS FREEZE DRYERS  
CUSTOM CONFIGURED FOR YOUR PRODUCT DEVELOPMENT  
AND CYCLE OPTIMIZATION*



*Committed to Product Excellence...and Continuous Support*



# Genesis Series Advances Freeze Drying Versatility

Genesis Series Freeze Dryers are the most versatile freeze dryers for pilot, research, or small scale production applications. Genesis appeals to a wide range of users including: biotechnology companies; tissue banks; and the researchers in universities, pharmaceutical companies, government agencies, and industrial manufacturers.

Genesis is unequalled for design and capabilities. It features a wide range of control options from manual controls to the latest in cGMP data monitoring and automation applications. It is the ultimate pilot scale freeze dryer because it allows for easy scale-up from research to full scale production. The controls and features are identical to those used in our performance matched industrial lyophilizers.

## Features

- The product chamber, shelves, and condenser chamber are made of durable, long-lasting 316L stainless steel, for many years of trouble-free performance.
- Standard 4" diameter vapor port increases vapor flow from the product to the condenser chamber for maximum vapor throughput (8" diameter available).
- An expanded range of shelf arrangements with shelf latching kits allows you to configure the Genesis to process a wide variety of vial sizes.

- Reliable refrigeration systems with proven standard CFC-free refrigerants offer a wide range of temperatures for all types of applications.
- Advanced control systems that are designed for 21 CFR Part 11 and allow the freeze-drying process to be fully automated are available.
- Capable of over 100 flexible configurations, the system is extremely easy to use.
- Compact, free-standing, mobile design makes the system very flexible.
- Two condenser options (25 and 35 liter capacity systems) are available.
- Up to six bulk drying shelves and five vial processing shelves provide extensive capacity.
- Squared product chamber allows ease of cleaning and maximum shelf area.
- Detachable isolator system is available for moisture and oxygen-sensitive products.
- I.Q. and O.Q. validation workbooks and full validation support are available worldwide.
- Easy-to-install clean room design packages facilitate installation.
- Convenient front-accessible vacuum pump module for easy monitoring and oil changes.
- Side mount manifold kit with 12 port manifold can be configured for processing bulk material in flasks.



**Genesis 35 EL with bulk shelves and automated Wizard 2.0 Control System**

## Options

- Optional controls with Pirani or capacitance manometer vacuum gauges and functions such as barometric endpoint and moisture analysis, as well as additional product probes and security systems, provide more precise control of the freeze-drying process.
- Optional computer workstations are available for all manual and automated control systems.
- Optional Sample Thief facilitates product analysis.
- Optional stainless steel product and condenser chamber doors with a viewport for use with corrosive materials.



Narrow configuration combined with a larger 8" diameter vapor port mimics a production-size freeze dryer in a pilot-scale unit



## Optional 8" Diameter Port Helps Simulate Production Size Machines



Genesis 35 EL with side-mount manifold kit

Enhance the performance of your Genesis with our 8" diameter vapor port! This is effective with very low eutectic point products that require low chamber pressures to be maintained during sublimation.

### You also benefit from:

- Multiple condenser sizes that allow easy product load matching
- A narrow footprint for easy installation
- Ability to use standard utilities
- All the advanced features of the standard Genesis

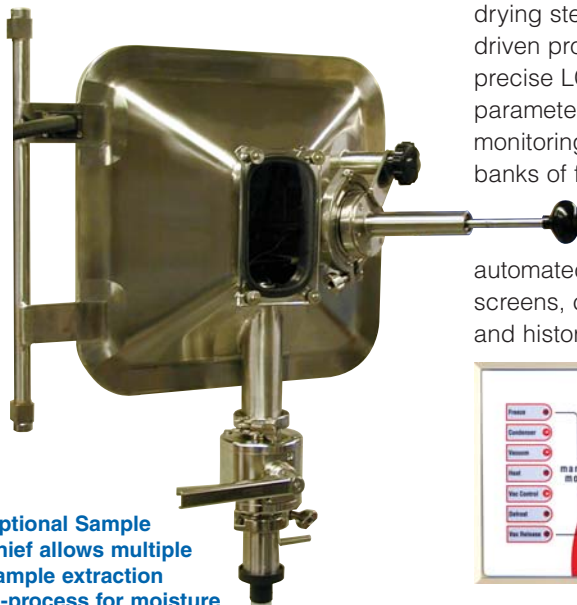
### Control Options

**Wizard 2.0:** This powerful touch pad driven controller features 16 recipes with 12 thermal treatment and 16 primary drying steps. It allows shelf or product driven processes. Wizard 2.0 provides precise LCD display of data and recipe parameters, along with a synoptic monitoring screen. Available with banks of four or eight product probes.

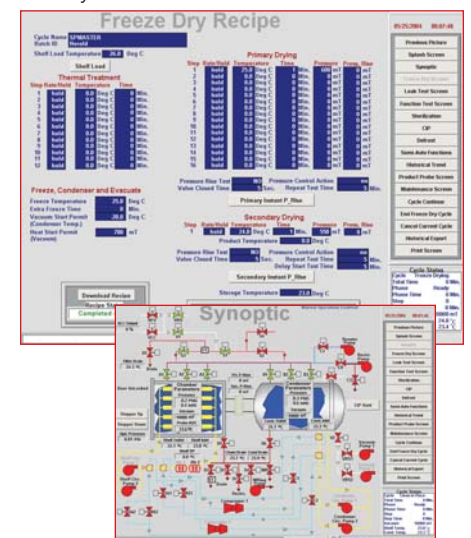
A control station is available which provides user-friendly automated controls, synoptic monitoring screens, complete cycle documentation, and historic printouts.

It provides three levels of security and data encryption. Encore accommodates eight product probes for uniform temperature monitoring, and it comes complete with Windows® controlled computer workstation.

**Maestro:** The ultimate in advanced control systems for precise control, validation, and support, the Maestro control system features an Allen Bradley PLC coupled with Intellution software in a Windows environment. It comes with a bank of 8, 12, or 16 product probes, a function test, and leak rate tests. Available with multi-level password security, remote view, pressure rise testing, moisture sensors, eutectic point monitors, batch reports, Capacitance-Pirani differentials, UPS, additional product probes, and Control System Qualification Package (CSQP). Can be designed to accommodate 21 CFR Part 11. This control system is extremely versatile, and has the ability to automate SIP and CIP cycles.



Optional Sample Thief allows multiple sample extraction in-process for moisture analysis of products at different phases of the freeze-drying cycle



**Encore:** This mid level control system features a high end Allen Bradley micro PLC that utilizes 32 bit technology.

# Genesis Freeze Dryer Specifications

Shelf Configuration	Bulk/Stoppering*	Bulk/Stoppering*	Optional Shelf Latching	
	Shelf Area, ft <sup>2</sup> /cm <sup>2</sup>	Shelf Clearance: in/mm	One Shelf Latched in/mm	Two Shelves Latched in/mm
1 Shelf	1.53/1422	12.87/327		
2 Shelf	3.06/2844	6.24/158	12.48/317	
3 Shelf	4.59/4266	4.03/102	6.05/153	12.1/307
4 Shelf	6.12/5688	2.93/74.5	3.91/99.3	5.87/149
5 Shelf	7.65/7110	2.27/57.7	2.84/72.2	3.79/96.3
6 Shelf	9.18/8532	1.82/46.3	n/a	n/a

Shelf size: W x D, in/mm 10.75 x 20.5 / 273 x 521 \*Available up to five shelves

Model Types	ES	ES**	XL	EL
Shelf Temperature (°C)	-50°	-48°	-60°	-70°
Condenser Temperature (°C)	-55°	-53°	-70°	-85°
Condenser Capacities	25 L	35 L	25 and 35 Liters	
Number of Compressors	1	1	1 (Auto Cascade)	2 (Cascade)
Shelf Temperature Control	-40°C (-55°C EL) to 65°C ± 0.5°C, shelf to shelf			
Vacuum Systems	400 Liter per minute vacuum pumps evacuate chamber in 20 minutes or less			
Stoppering Systems	Top-down hydraulic			
Construction	316L Stainless Steel shelves, product, and condenser chambers			

\*\*Higher temperature specification due to increased capacity

Liters of Bulk Material (Per Shelf)						
Per Shelf (W x D, in/mm 10.75 x 20.5 / 273 x 521)	X1	X2	X3	X4	X5	X6
For 3/4" (19 mm) Fill Depth: Liters	2.4	4.8	7.2	9.6	12.0	14.4
For 1/2" (13 mm) Fill Depth: Liters	1.6	3.2	4.8	6.4	8.0	9.6

Vial Capacity Chart (Per Tray/Per Shelf)				
Capacity (mL)	Height <sup>1</sup> (mm)	Body (outer dia.-mm)	Quantity (per 10.75" x 20.5" shelf) (273 cm x 521 cm)	Catalog Order No.
2	33	15	627	179077 <sup>2</sup>
2	86	12	578 <sup>4</sup>	179275 <sup>3</sup>
5	40	22	264	179101 <sup>2</sup>
5	47	23	252	179085
10	50	24	220	179143 <sup>2</sup>
10	54	26	198	179135
20	63	29	152	178855 <sup>2</sup>
20	58	33	119	178830
30	63	37	91	178897
50	73	43	66	178921
100	95	52	45	178954
125	107	54	40	178988

Dimensional Data, Weights	Width in/cm	Depth in/cm	Height in/cm	Weight lb/kg
25L Standard Configuration	41/104	28/71	73.5/187*	800/363
35L Standard Configuration	41/104	35/89	73.5/187*	850/383
25 & 35L Clean Room Configuration	25/64	70/178	73.5/187*	850/383

\*Stoppering adds 5.75 inches to overall height.

1. Add 8 mm for partially inserted stopper
2. Thin wall type
3. Special stoppering ampule: Add 10 mm for partially inserted stopper
4. Requires support grid for stoppering



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Note: Partial loads may require shelf spacer. Please consult factory.

Note: All temperature specifications based on an ambient temperature of 20°C. Specifications are subject to change without notice. Contact VirTis for latest revision.