

- Shelf Area from 12 Sq ft to 20 Sq ft
- 6 to 10 Shelves in Bulk or Stoppering
- Full PC/PLC Control Standard
- -53C or -85C Condenser Temperature
- 30L Condenser Capacity
- Remote Condenser with Hot Gas Defrost
- -70C Shelf Temperature
- Fluid Filled Hollow Shelves, 12" x 24" Each
- Rectangular 316L Chamber
- Hydraulic Stoppering
- Pirani Pressure Control and Gas Backfill Standard
- Clean Room Configuration Available

NEW!
Opti-Dry Pro
Run Optimization
Software

The Max Series Freeze Dryer provides the maximum shelf space possible from phase one research to clinical production and small volume production.

A rectangular chamber offers a compact profile with either bulk or bottom-up hydraulic stoppering configuration. Both options have a radiant heat plate above the top shelf for uniform drying on all shelves. All internal surfaces are constructed of 316L stainless steel and offer a polish of 20 Ra or better.

A remote coil condenser is located between the product and the vacuum pump providing maximum condensing surface area and vacuum pump protection, with the ability to add an optional isolation valve. A 6" vapor port connects the chambers. A butterfly isolation valve can be added for end of drying testing. Hot gas is used for defrosting the condenser when drying is complete.

Fluid filled hollow shelves with a serpentine fluid path provide the most uniform shelf temperature possible and results in consistent and repeatable drying. All units come with one product tray per shelf, either a removable bottom or bulk.



Options

IQ/OQ Documentation
Shelf Latching Plates
Special Trays
Capacitance Manometer
Moisture Sensor
Clean Room Configuration
Validation Services

Isolation Valve
Additional Product Probes
LN2 Trap
Acid Trap
8" Vapor Port
21CFR Part 11 Compliance
Protocol Development

Special points of interest:

- Versatile Research and Production Freeze Dryer
- Large Capacity Condenser
- Advanced Refrigeration Technology
- Fluid Filled Hollow Shelves for Maximum Temperature Uniformity



Refrigeration System

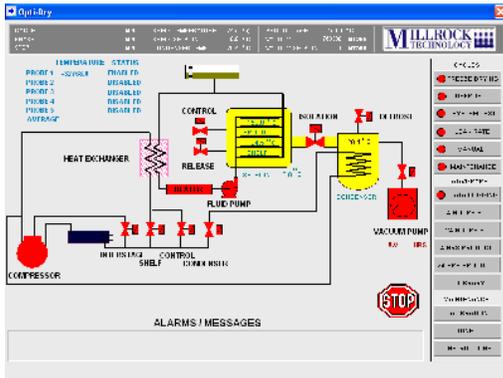
Our decades of refrigeration experience have resulted in a design that has more than enough capacity to handle your demanding drying runs. Standard unit is water cooled.

Vacuum System

A 400 LPM Leybold corrosion resistant vacuum pump comes standard with this system. Pump down time to 100 mT is less than 20 minutes, with an ultimate vacuum of less than 30 mT.

Opti-Dry PC/PLC Controls

The Max Series comes complete with PLC controls and a PC for programming and data collection. Our easy to use system provides automatic freeze-drying, defrost, system and leak rate testing. An interactive maintenance screen simplifies component servicing. Data can be printed in either numerically or graphically. This same control system can be used on industrial dryers, allowing scaling to production.



Freeze Drying	10 freezing steps 16 drying steps with pressure control 1 step secondary drying 1 step final drying Alarms, recipe management, data logging
Manual	Individual switches for shelf, condenser, vacuum, isolation valve and release. Single set-points for shelf and set-point.
Defrost	Automatic timed hot gas
System Test	Performance evaluation of shelf, condenser, vacuum, heating and control
Leak Rate	Automatic testing of leak rate
Maintenance	Independent operation of components, with troubleshooting and calibration

Model	ST S/B	MX75	LT S/B
Condenser Temp	-53 C	-75 C	-85 C
Condenser Capacity	30L Max, 20L/24 Hrs	30L Max, 20L/24 Hrs	30L Max, 20L/24 Hrs
Shelf Temp	-48 C to +65 C	-60 C to +65 C	-70 C to +65 C
Compressor	3.5 HP Scroll	6.5 HP Two Stage	3.5 HP, 2 HP Scroll
Vacuum Pump	400 LPM	400 LPM	400 LPM
Vacuum Gauge	Pirani	Pirani	Pirani
Dimensions	46"W x 33"D x 80"H	46"W x 33"D x 80"H	46"W x 33"D x 80"H
Electrical Service	230V/60Hz, 200V/50Hz 1PH/40A	230V/60Hz, 200V/50Hz 1PH/40A	230V/60Hz, 200V/50Hz 1PH/40A

Shelves	Spacing (in/mm)	Area (sq ft/sqM)
6	4.5/114	12/1.1
7	3.75/95	14/1.3
8	3.25/82	16/1.48
9	2.8/71	18/1.67
10	2.5/63	20/1.86

Vial Capacity

Vial ml	Dia mm	Ht mm	6	7	8	9	10
2	16	41	4380	5110	5840	6570	7300
5	22	48	2388	2786	3184	3582	
10	24	58	2016	2352	2688	3024	
20	29	71	1320	1540	1760		
50	43	81	546	637	728		
100	52	92	396	462			

Bulk Fill (liters)

	6	7	8	9	10
10mm deep	10.8	12.6	14.4	16.2	18.0
15mm deep	16.2	18.9	21.6	24.3	27.0
20mm deep	21.6	25.2	28.8	32.4	36.0

Lyophilization System, Inc
49 Kieffer Lane
Kingston, NY 12401

Note: Specifications subject to change without notice. All specifications based on 20C ambient

