

Manifold Freeze-Dryers

Flexi-Dry™ MP, Flexi-Dry™, Dura-Dry™ MP



- Reliable performance safeguards valuable samples
- Short vapor path for rapid drying rate
- Easy maintenance increases system longevity



Flexi-Dry MP with freeze-dryer containers and accessories

Flexi-Dry MP

The Flexi-Dry MP is a compact freeze-dryer with a rapid drying rate. The product manifold contains a titanium condenser and provides a short, unrestricted vapor path for maximum efficiency.

STANDARD FEATURES AND SPECIFICATIONS		
	FD-3-55A-MP	FD-3-85A-MP
Performance	3 liters per 24 hours with maximum low condenser temperature at -55°C	3 liters per 24 hours with maximum low condenser temperature at -85°C
Dimensions*	15" W x 29" H x 22" D (38.1 cm x 73.7 cm x 55.9 cm)	15" W x 29" H x 22" D (38.1 cm x 73.7 cm x 55.9 cm)
Weight**	106 lbs. (47.6 kg)	132 lbs. (59.3 kg)
Electrical requirements	120V/60Hz, MP control 120V/60Hz, 6 amps w/o vacuum pump***	120V/60Hz, MP control 120V/60Hz, 12 amps w/o vacuum pump***

*Height to drip pan: 27.9 cm (11")

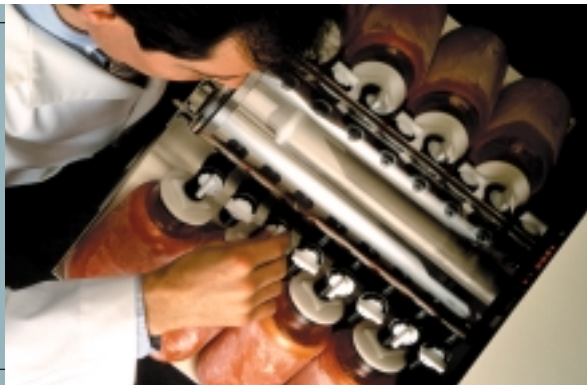
**Pump (75 lbs./34 kg) shipped separately

***Option all units: 220V/50Hz: Change "A" to "D" in model number

- > Microprocessor control for one-touch startup and shutdown
- > "ADD" product indicator
- > Monitors electrical, temperature and vacuum parameters
- > Automatic signal for out-of-range conditions or power failure
- > Manifold rotates for container positioning without using angle adapters
- > Manifold has 16 ports with Quik-Vac™ valves

CONSTRUCTION

Cabinet	Painted sheet metal with stainless steel trim. Adjustable stainless steel condensate drip pan supports flasks.
Condenser	Titanium



CONTROLS AND INSTRUMENTATIONS

Microprocessor control	One-touch startup and shutdown. Indicates when product can be introduced. <i>Diagnostic functions:</i> Low voltage, inadequate temp., high pressure. Initiates proper start-up after power failure.
Digital temperature display	Digital, -100°C to +100°C (1°C resolution)
Vacuum display	Digital, 0-3000 mT range (1 mT resolution)
Product addition display	Illuminated alpha display
Defrost	One-touch. Hot gas defrosts condenser in 15 minutes.

PRODUCT MANIFOLDS

FD-ML-16	Acrylic; use with inorganic acids and water
FD-MSS-16	Stainless steel; use with organic solvents and water
FD-MTE-16	Teflon [®] ; use with organic or inorganic corrosives. Maximum corrosion resistance.

- > Sixteen 1.27 cm (0.5") ports spaced 4.45 cm (1.75") apart. Includes 16 Quik-Vac valves.
- > Manifold rotates on axis to accommodate various-sized flaskware.

VACUUM PUMP

VP-100	Direct-drive, two stage oil-sealed pump with gas ballast. Corrosion resistant, 122 liters/minute.
OME-02	Oil mist eliminator for pump

Direct drive, two-stage, oil-sealed with gas ballast

ACCESSORY

AFI-10	In-line acid filter contains hydrated lime, sodium hydroxide, and potassium hydroxide packaged in a disposable cartridge.
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ordering guidelines

AQUEOUS SAMPLES

FD-3-55MP	Flexi-Dry freeze-dryer
FD-ML-16	Acrylic manifold
VP-100	Vacuum pump
OME-02	Oil mist eliminator for VP-100

SAMPLES CONTAINING SOLVENTS

FD-3-85MP	Flexi-Dry freeze-dryer
FD-MSS-16	Stainless steel manifold
VP-100	Corrosion-resistant vacuum pump
OME-02	Oil mist eliminator for VP-100

SAMPLES CONTAINING ACID

FD-3-85MP	Flexi-Dry freeze-dryer
FD-ML-16	Acrylic manifold
VP-100	Corrosion-resistant vacuum pump
OME-02	Oil mist eliminator for VP-100
AFI-10	Acid filter



Flexi-Dry 1 liter

The Flexi-Dry 1 liter personal freeze-dryer is a versatile, compact unit designed for labs with light to moderate sample requirements. This economical, bench-top system is available with a choice of condenser temperature, manifolds, and accessories to allow you to configure the best freeze-dryer for your application.

STANDARD FEATURES AND SPECIFICATIONS		
	FD-1-54A	FD-1-84A
Performance	1 liter per 24 hours with maximum condenser temperature at -54°C	1 liter per 24 hours with maximum condenser temperature at -84°C
Dimensions	16" W x 20" H x 16" D (40.6 cm x 50.8 cm x 40.6 cm)	16" W x 20" H x 16" D (40.6 cm x 50.8 cm x 40.6 cm)
Weight*	53 lbs. (24 kg)	78 lbs. (35.3 kg)
Electrical requirements	120V/60Hz, 7 amps, analog (220V/50Hz available)	120V/60Hz, 7 amps, analog (220V/50Hz available)

*Add 20 lbs. (9 kg) for shipping weight

CONSTRUCTION	
Cabinet	Vinyl-laminated sheet metal, stainless steel drip pan
Condenser	Stainless steel, removable from manifold for use in other cooling operations

Flexi-Dry's condenser, located inside the product addition manifold, provides the shortest, unrestricted vapor path in the industry for maximum efficiency.

The manifold can be rotated and adjusted vertically, in order to correctly position containers without using angle adapters. All ports are accessible from the front for easy loading.

Manifolds, which include 12 ports spaced 1.25" (3.8 cm) apart and 12 Quik-Vac valves, are available in acrylic and stainless steel. Vacuum and temperature indicators are analog.

CONTROLS AND INSTRUMENTATIONS	
Temperature display	Analog, °C and °F scales
Vacuum display	Analog gauge, 0-2000 mT
Vacuum release	Manually operated valve located at top of manifold block



PRODUCT MANIFOLDS

	FD-ML-12	FD-MSS-12
Material	Acrylic	Stainless steel
Description	Use with samples containing water and inorganic acids. Visible condenser.	Use with samples containing organic solvents. Condenser is visible through acrylic end plate.

> *Manifold rotates on axis to accommodate various sizes of flaskware.*

> *Twelve 1/2" (1.27 cm) ports with Quik-Vac valves*

VACUUM PUMP

VP-50	Direct-drive, two stage, oil-sealed pump with gas ballast. Corrosion resistant, 60 liters/minute.
OME-01	Oil mist eliminator for pump

ACCESSORY

	AFI-10
Description	In-line acid filter contains hydrated lime, sodium hydroxide, and potassium hydroxide packaged in a disposable cartridge.

ordering guidelines

AQUEOUS SAMPLES

FD-1-54	Flexi-Dry freeze-dryer
FD-ML-12	Acrylic manifold
VP-50	Vacuum pump
OME-01	Oil mist eliminator for VP-50

SAMPLES CONTAINING SOLVENTS

FD-1-84	Flexi-Dry freeze-dryer
FD-MSS-12	Stainless steel manifold
VP-50	Corrosion-resistant vacuum pump
OME-01	Oil mist eliminator for VP-50

SAMPLES CONTAINING ACID

FD-1-84	Flexi-Dry freeze-dryer
FD-ML-12	Acrylic manifold
VP-50	Corrosion-resistant vacuum pump
OME-01	Oil mist eliminator for VP-50
AFI-10	Acid filter

Dura-Dry II MP
with Dura-Port
manifold system



Dura-Dry II MP

Microprocessor control condenser module for use with stoppering and bulk tray dryers or Dura-Port™ manifolds

The microprocessor-controlled Dura-Dry II is a uniquely durable refrigerated condenser system that delivers proven reliability and assures low operating costs.

Unlike competitive brands, the FTS Dura-Dry II requires minimal maintenance since the titanium condenser coil and stainless steel condenser housing are not affected by product acids or solvents.

A patented coil design is located in the vapor stream to prevent moisture carry-over to the vacuum pump. As ice builds up on the helical condenser, it increases the surface area. This maximizes collection of subliming vapors to protect the unit.

Microprocessor control turns start-up and shut-down into single touch operations. It monitors electrical, temperature and vacuum parameters to avoid product loss. It also alerts you to out-of-range conditions or power failure and takes corrective action when possible. When used with a manifold, the system signals when it is time to add product. When used with a tray dryer, the system automates the complete sequence of events necessary for freezing and drying.

The large 20-liter condenser is located in a space-saving 32" wide cabinet and is provided with a quick-lock access door for easy inspection and cleaning. Side and rear panels are removable for service and maintenance.

Dura-Dry II, vacuum pump and product addition systems are sold separately so you can configure the optimal system for your requirements. The Dura-Dry II can be operated as a manifold freeze-dryer by using a Dura-Port manifold system, or as a tray dryer by using the stoppering tray dryer or bulk tray dryer systems.



features

- > Patented microprocessor control for automatic operation
- > Patented microprocessor power failure recovery routine
- > Available with -55°C or -85°C condenser temperatures
- > Automatic defrost
- > Corrosion-resistant titanium condenser in a stainless steel housing
- > Easy access condenser door with molded gaskets

STANDARD FEATURES AND SPECIFICATIONS

	FD-2055	FD-2085
Performance	20 liters per 24 hours with maximum low condenser temperature at -55°C, MP control	20 liters per 24 hours with maximum low condenser temperature at -85°C, MP control
Dimensions	32" W x 33.5" H x 29.5" D (81.3 cm x 85 cm x 75 cm)	32" W x 33.5" H x 29.5" D (81.3 cm x 85 cm x 75 cm)
Weight	385 lbs. (175 kg)	435 lbs. (198 kg)
Electrical requirements*	7 amps	10 amps

Options: Can be used as a manifold system with the Dura-Port manifold, or at any time in the future as a tray dryer with the stoppering or bulk tray dryer chambers.

* > Available for 208V/60Hz, 230V/60Hz, or 220V/50Hz

> Vacuum pump electrical requirements are not included.

> Add 6 amps for vacuum pump.

> All high voltage components are located in an enclosed electrical housing to meet international standards.

CONSTRUCTION

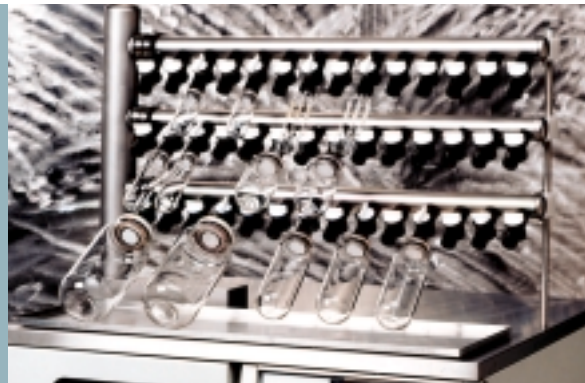
Cabinet	Tubular steel frame with painted steel sides and stainless steel top work surface. Hinged front door for easy access to internal parts. Convenient access door to vacuum pump.
Condenser	Patented titanium coil in a stainless steel chamber with a transparent, easy access acrylic front door. No vacuum grease required on the thick molded gaskets that snap fit on condenser housing. Removable coil for easy inspection, cleaning, and service.

CONTROLS AND INSTRUMENTATIONS

Microprocessor control	One-touch start-up, shut-down and defrost. Low voltage instrument panel
Digital temperature display	-100°C to +100°C (1°C resolution)
Digital vacuum display	1-3000 mT range (1 mT resolution)
Product addition display	Illuminated "ADD" display alerts operator that product may be introduced.
Diagnostic functions	Low voltage, inadequate temperature and high pressure
Patented power failure protection	When power returns, the system will sequence on if the temperature and vacuum are within the proper range. A light will flash indicating a power failer has occurred. If temperature and vacuum are out of range, the vacuum pump will not turn on to prevent liquids from being pulled into the pump. An alarm will sound and the microprocessor will display "HELP."
Defrost	Hot gas. One touch start-up. The system will turn off when defrost is complete. Built-in port and condensate drain line.

VACUUM PUMP

VP-200	Direct-drive, two stage oil-sealed pump with gas ballast. Corrosion-resistant, 244 liters/minute.
OME-03	Oil mist eliminator for pump



ACCESSORIES FOR DURA-DRY II

CA-3	3-port manifold holder, allows the addition of up to 3 manifolds
CA-6	6-port manifold holder, allows the addition of up to 6 manifolds
MS-14	Single row, 14-port manifold, stainless steel, complete with Quik-Vac valves
MS-28	Double row, 28-port manifold, stainless steel, complete with Quik-Vac valves
FSS	Flask support systems are available for all the above. See price list for details.
AF-2	Acid filter
CRVPO-1	Vacuum pump oil for corrosion-resistant pump (one gallon)
LNT-3	Stainless steel liquid nitrogen trap with center well. Traps vapors with freezing points below that of the condenser. Three lever-activated ball valves provide vacuum by-pass during refilling or disuse. Trap removal for easy inspection and cleaning.



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