

DAIHAN Scientific

UniFreez™ FD

**New**

Lab Scale, Bench-top Type

# Freeze Dry System



*Compact Size*

*Fastest Freezing Time*

DAIHAN Scientific

# Freeze Dry System UniFreez™ FD

## Lab Scale Bench-top Freeze Dryer

Patented Jog-Dial & Touch-Button Control

Compact-size Lab Scale Bench-top Type

Fastest Freezing Time

### Ergonomic & Compact Body

- Lab Scale, Bench-top Type Model
- Compact size for all laboratory table
- Ergonomic Design

Company	DAIHAN	Competitor
Chamber Capacity	8 Lit.	8 Lit.
External Dimension (mm)	w400xd530xh415	w500xd646xh976

### Various Installing Accessories

- Available Installing 12-port Manifold or Drying Chamber



12-port Manifold



Drying Chamber

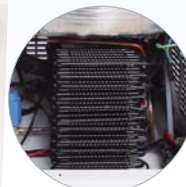
### Intuitive User Interface

- Patented Jog-Dial Controller(Turn and Push)
- Capacitive Touch Button for user convenience
- Precise control by microprocessor
- Digital Back-Light LCD



### Fastest Freezing System

- DAIHAN Freezing System realizes Quick Freezing and Quick Defrosting Function

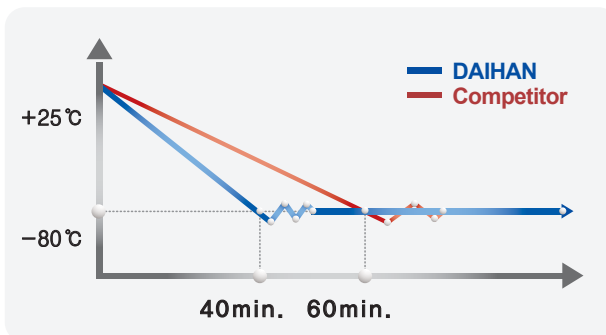


Freezing System

### Others

- High Sublimation Rate : 3Lit/24hr
- -80°C Pre-Freezing Function
- Manual Defrost Function : Hot Gas Defrost Function for quick next cycle turn-around
- Automatic or Manual Process Control
- Controllable temperature, vacuum and timer at Automatic Mode
- LED Indication Light On in case of suitable temperature and vacuum

- Freezing speed comparison with Competing Product



DAIHAN® 3 & 6Lit/day Freeze Dry System “UniFreez™ FD”, Lab Scale Benchtop-type, Automatic & Manual Process, -90°C Various Optional Acc.; T-type Manifold, Round · Square · Stoppering-Acrylic Dry Chamber & Stainless steel Dry Chamber



I. 3Lit/day Freeze Dryer “FD-8”

※ The Figure; Installation of Optional 12-port T-type Manifold and 12 Vacuum Handle Valve

2-Year Warranty



II. 6Lit/day Freeze Dryer “FD-16”

※ The Figure; Installation of Optional Large Volume Square-type Acrylic Dry Chamber

2-Year Warranty

- Made in Korea
- Patented Jog-Dial & Touch Button Control System
- with Certificate & Traceability : Controlled by Serial Number, Certificate, Delivery-information, and Traceable Data Base System
- PL(Product Liability) Insurance
- Ideal for a Wide Range of Applications Including Pharmaceutical, Biological, Food Industry, Petrochemical and Semiconductor Industry, etc.
- Various Optional Accessories;
  - (1) T-type Manifold with 12-port
  - (2) Round-type Acrylic Dry Chamber with 8-port
  - (3) Large Volume Square-type Acrylic Dry Chamber
  - (4) Heated Stoppering Acrylic Dry Chamber
  - (5) Stainless-steel Dry Chamber with 12-port
- \* Ergonomic Design and Compact Body Size
- \* Allows Automatic or Manual Process Control
- \* Rapid Integrated Hot Gas Defrost Function for Quick Next Cycle Turn-around
- \* LCD Indicates Temp and Vacuum
- \* LED Indication Light On in Case of Suitable Temp and Vacuum
- \* Can be Controlled Temp and Timer at Automatic Mode
- \* Homogeneous Temp Distribution across all Shelves in Dry Chamber

Specifications & Ordering information

Spec.	Model	I. “UniFreez™ FD-8”	II. “UniFreez™ FD-16” <span style="color: red; font-weight: bold;">NEW</span>
Sublimation Rate(Lit / day)		3Lit / day	6Lit / day
Chamber & Max Condenser Capa.		Chamber : 8 Lit, Condenser : 10 Lit	Chamber : 16 Lit, Condenser : 20 Lit
Set Temp Range		-90°C ~ -60°C	
Compressor & Defrost-type		1/2 HP, Manual	3/4 HP, Manual
Display		Digital LCD with Back-Light Function	
Material		Stainless-steel 304	
Dimension(w×d×h) & Weight		Exterior : 460×620×h520 mm, Condenser : φ300×h150 mm, Net Weight : 55 kg	Exterior : 520×680×h600 mm, Condenser : φ300×h300 mm, Net Weight : 60 kg
Electrical Reqts.		1 Phase, AC 120 V, 60 Hz or AC 230 V, 50 / 60 Hz	
Cat. No.	230V	DH.Frd00208	DH.Frd00216
	120V	DH.Frd00108	DH.Frd00116

\* Other Specifications are available upon Customer' s Request.

Optional Manifold & Dry Chamber

(1) 12-port T-type Manifold

DH.Frd01041 12-port T-type Manifold with 12 Silicon Stoppers, for Connecting 3/4" Vacuum Handle Valve, for “UniFreez™ FD-8” model

DH.Frd01042 12-port T-type Manifold with 12 Silicon Stoppers, for Connecting 3/4" Vacuum Handle Valve, for “UniFreez™ FD-16” model

(2) 8-port Round-type Acrylic Dry Chamber & 3-stage Shelf

DH.Frd01051 (a) 8-port Round-type Acrylic Dry Chamber with 8 Silicon Stoppers, for Connecting 3/4" Vacuum Handle Valve, Chamber Size : Int. φ284×h390mm, Ext. φ300×h463mm, Shelf Size : φ259×11mm, Total h225mm, for “UniFreez™ FD-8” model

DH.Frd01052 (b) 8-port Round-type Acrylic Dry Chamber with 8 Silicon Stoppers, for Connecting 3/4" Vacuum Handle Valve, Chamber Size : Int. φ334×h390mm, Ext. φ350×h453mm, Shelf Size : φ310×11mm, Total h225mm, for “UniFreez™ FD-16” model

DH.Frd01061 (c) 3-stage Stainless-steel(SS) Shelf φ260×11mm, Total h225mm, for “UniFreez™ FD-8”

DH.Frd01062 (d) 3-stage Stainless-steel(SS) Shelf φ310×11mm, Total h225mm, for “UniFreez™ FD-16” model



(1) 12-port T-type Manifold with 12 Silicon Stoppers



(2)-a-b 8-port Round-type Acrylic Dry Chamber (2)-c-d 3-stage SS Shelf

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NEW



(3) Large Volume Square-type Acrylic Dry Chamber With 5-stage SS Shelf

NEW



(4) Heated Stopping Acrylic Dry Chamber with 2-stage SS Shelf

NEW



(5) 12-port SS Dry Chamber



(6) Vacuum Handle Valve

(7)

(8)

(9)

Tube Adapter for Connecting Flask Top



(10) Silicone Flask Top



(11) Glass Flask



(12) Vacuum Pump



(13) 2-stage Table Cart

### (3) Large Volume Square-type Acrylic Dry Chamber with 5-stage Shelf **NEW**

**DH.Frd02100** Large Volume Square-type Acrylic Dry Chamber, with 5-stage SS shelf, Chamber Size : Int. 380×415×h400, Ext. 440×475×h465mm, Shelf Size : 380×380×h25mm, for "UniFreez™ FD-8" model

**DH.Frd02101** Large Volume Square-type Acrylic Dry Chamber, with 5-stage SS shelf, Chamber Size : Int. 435×485×h420mm, Ext. 495×540×h475mm, Shelf Size : 450×450×h25mm, for "UniFreez™ FD-16" model

### (4) Heated Stopping Acrylic Dry Chamber, with Height Adjustable 2-stage Shelf and Analog Temp Controller Package-set **NEW**

**DH.Frd07001** Heated Stopping Acrylic Dry Chamber, with Height Adjustable 2-stage Shelf, Chamber Size : Int.  $\phi$ 284×h320mm, Ext.  $\phi$ 300×h523mm, Shelf Size :  $\phi$ 255×13mm, Total h278mm, for "UniFreez™ FD-8" model

**DH.Frd07002** Heated Stopping Acrylic Dry Chamber, with Height Adjustable 2-stage Shelf, Chamber Size : Int.  $\phi$ 334×h320mm, Ext.  $\phi$ 350×h523mm, Shelf Size :  $\phi$ 305×13mm, Total h278mm, for "UniFreez™ FD-16" model

**DH.Frd09001**  $\odot$  Analog Temp. Controller for Heated Stopping Acrylic Dry Chamber, 230V, Temp. Range 0°C~40°C

### (5) 12-port Stainless-steel Dry Chamber & 3-stage Shelf **NEW**

**DH.Frd08001** 12-port Stainless-steel Dry Chamber, for "UniFreez™ FD-8" model, Chamber Size : Int.  $\phi$ 296×h350mm, Ext.  $\phi$ 320×h370mm Shelf Size :  $\phi$ 259×11mm, Total h278mm

**DH.Frd08002** 12-port Stainless-steel Dry Chamber, for "UniFreez™ FD-16" model, Chamber Size : Int.  $\phi$ 346×h350mm, Ext.  $\phi$ 370×h370mm Shelf Size :  $\phi$ 310×11mm, Total h278mm

**DH.Frd01061**  $\odot$  3-stage Stainless-steel(SS) Shelf  $\phi$ 260×11mm, Total h225mm, for "UniFreez™ FD-8" model

**DH.Frd01062**  $\odot$  3-stage Stainless-steel(SS) Shelf  $\phi$ 310×11mm, Total h225mm, for "UniFreez™ FD-16" model

### Optional Vacuum Handle Valve & Tube Adapter for Connecting Flask

**DH.Frd03010** (6) 3/4" Vacuum Handle Valve, Neoprene Rubber & PP, for Connecting Flask

**DH.GL28091** (7) 3/4" Glass Tube Adapter,  $\phi$ 19/1.8t×L80mm for Connecting Middle & Large-size Flask Top

**DH.GL28092** (8) 3/4" Curved Glass Tube Adapter,  $\phi$ 19/1.8t×L80mm, for Connecting Middle & Large-size Flask Top

**DH.Frd04010** (9) 3/4" PP Tube Adapter,  $\phi$ 19/1.8t×L80mm, for Connecting Small-size Flask Top

### Optional DURAN® Borosilicate $\alpha$ 3.3 Glass Flask & Silicone Flask Top

**DH.Frd05010** (10) Silicone Flask Top, 3/4" Small-size Flask Top, for 40-/80-ml Flask

**DH.Frd05020** , 3/4" Middle-size Flask Top, for 200-/300-ml Flask

**DH.Frd05030** , 3/4" Large-size Flask Top, for 500-/700-/1000-ml Flask

**DH.GL12041** (11) Glass Flask, DURAN® Glass  $\alpha$  3.3, 40ml,  $\phi$ 40/2.3t×h80mm

**DH.GL12042** , 80ml,  $\phi$ 40/2.3t×h120mm

**DH.GL12043** , 200ml,  $\phi$ 65/2.2t×h100mm

**DH.GL12044** , 300ml,  $\phi$ 65/2.2t×h140mm

**DH.GL12045** , 500ml,  $\phi$ 90/2.5t×h125mm

**DH.GL12046** , 700ml,  $\phi$ 90/2.5t×h165mm

**DH.GL12047** , 1000ml,  $\phi$ 90/2.5t×h225mm

### Optional Vacuum Pump & 2-stage Table Cart for Vacuum Pump

**V3.VOP100.FRD** (12) Vacuum Pump, "VOP-100", 120(100)Lit./min, NW25, 220V

**V3.VOP150.FRD** , "VOP-150", 180(150)Lit./min, NW25, 220V

**DH.Frd06025** NW25 Vacuum Pump Connection-set, Tube · O-ring · Clamp

**DH.Frd06016** NW16 Vacuum Pump Connection-set, Tube · O-ring · Clamp · Adapter

**DH.Ca1002** (13) 2-stage Table Cart for Freeze Dryer & Vacuum Pump, with Stop-on Casters and Vacuum Pump Oil Tray, w504×d604×h780mm