


ESCO

WORLD CLASS. WORLDWIDE.

SubliMate®

Bench Top Laboratory Freeze Dryers



 Designed and Made in the E.U.



2

WELCOME TO ESCO

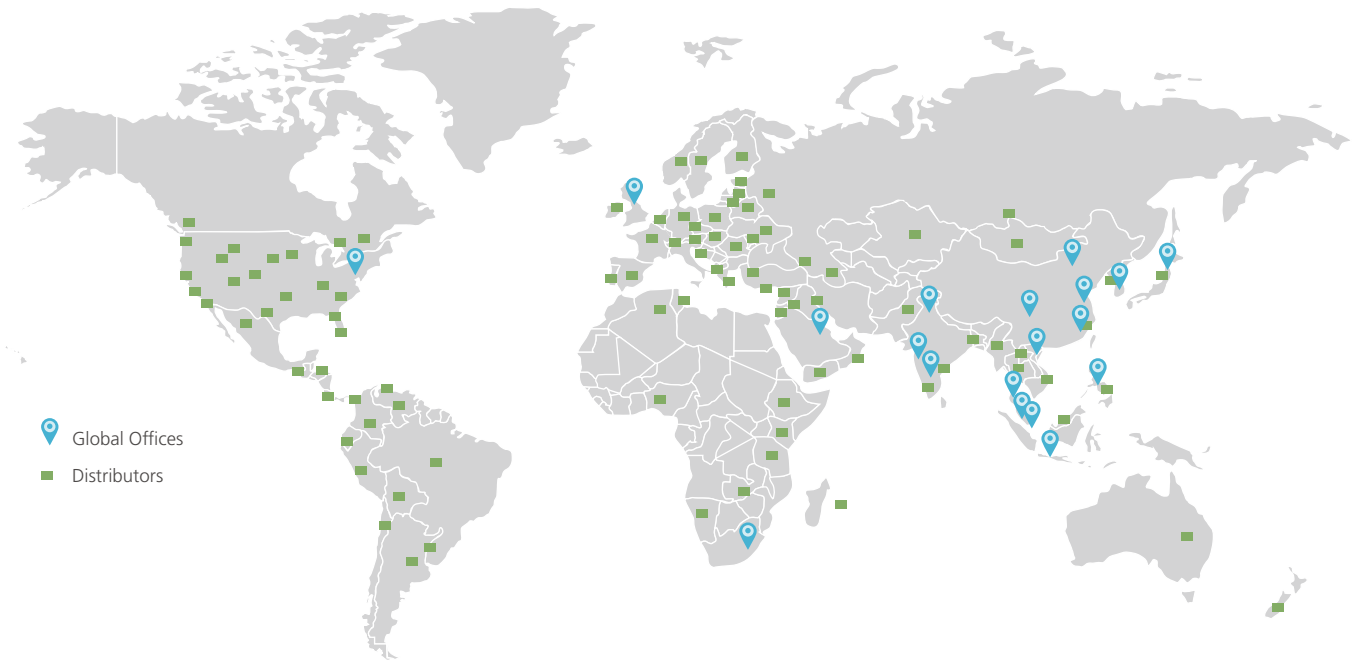
Esco's vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.

- A leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions.
- A world leader in biological safety cabinets.
- With offices in 13 countries such as Bahrain, China, India, Japan, Korea, Malaysia, Philippines, Singapore, U.K., U.S., Vietnam, South Africa and Indonesia, and more expansions planned.
- North American facilities in Pennsylvania for sales, service and logistics in the U.S. and Canada.
- More than 600 employees total.
- Distributors in more than 100 countries.
- Products independently tested to international standards.
- Large R&D investments, world-leading technologies.
- State-of-the-art production, vertically integrated manufacturing floor space.
- Worldwide service covering a geographic expanse so broad that the sun never sets on what we do.



Sublimate®
Bench Top Laboratory Freeze Dryers

GLOBAL NETWORK



PRODUCTS AND APPLICATION

Esco Life Science Tools

Laboratory Equipment

- Biosafety and Laminar Flow**
- Class II Type A2 Biological Safety Cabinets
 - Class II Type B2 Biological Safety Cabinets
 - Class III Biological Safety Cabinets
 - Horizontal Laminar Flow Clean Benches
 - Vertical Laminar Flow Clean Benches
 - Laboratory Animal Research Workstations
 - PCR Cabinets

- Fume Hoods**
- Laboratory Fume Hoods
 - Ductless Fume Hoods
 - Fume Scrubbers
 - Exhaust Blowers
 - Fume Hood Airflow Monitors

- PCR**
- PCR Thermal Cyclers
 - Not Available in North America*

- Incubators and Ovens**
- Forced Convection Laboratory Ovens
 - Forced Convection Laboratory Incubators
 - Refrigerated Incubators
 - CO₂ Incubators
 - Remote Monitoring, Data Logging, and Programming Software

- Cold Storage**
- Ultra-Low Temperature Freezers

- Freeze Dryer**
- Freeze Dryer

Medical Equipment

- Assisted Reproductive Technology**
- ART Workstations
 - CO₂ Incubators with Suppressed O₂
 - Multi-room Incubators

Pharmaceutical Equipment

- Containment / Compounding Pharmacy**
- Downflow Booths
 - Powder Weighing Balance Enclosures
 - Pharmacy Isolators
 - Cytotoxic Safety Cabinets
 - Soft Capsule
 - Air Showers
 - Straddle Units
 - Garment Storage Cabinets
 - Pass Boxes
 - Transfer Hatches



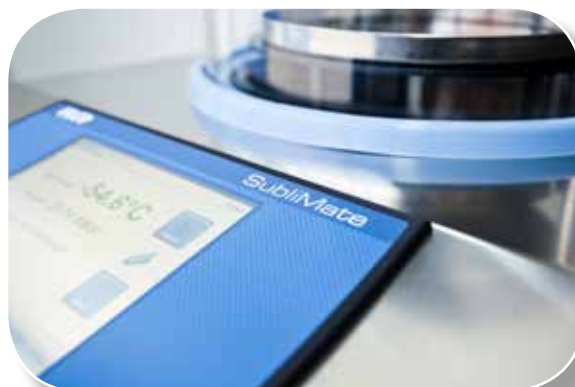
SubliMate®

BENCH TOP LABORATORY FREEZE DRYERS

Introducing Esco SubliMate®, the new series of world-class laboratory freeze dryers. Three models are available with compact designs and can achieve low condensation temperatures down to -90°C . The LusterClear™ ice condenser design allows for easy cleaning and prevents damage to cooling coils during ice core removal. The large touchscreen on SmarTouch™ controller delivers an ergonomic, intuitive interface and easy-to-use programming. The innovative new EzySeal™ valve design provides easy drying for flasks. The pressure sensors and IceOut™ defrost system come standard for discerning researchers.

4

- SubliMate® 2 is the smallest model within the series and allows for samples containing up to two litres of solvent to be dried within a 24-hour period.
- SubliMate® 5 has a 5 kg ice capacity which can dry larger volumes or allows multi cycle use prior to defrosting.
- SubliMate® 5LT is a low-temperature version that reaches -90° ; ideal for use when solvents other than water are present.



Samples dry great with Esco's SubliMate

TYPICAL APPLICATIONS:

- Laboratory research
- Protein purification
- Products for analysis
- Plant material, organic tissue, waste products



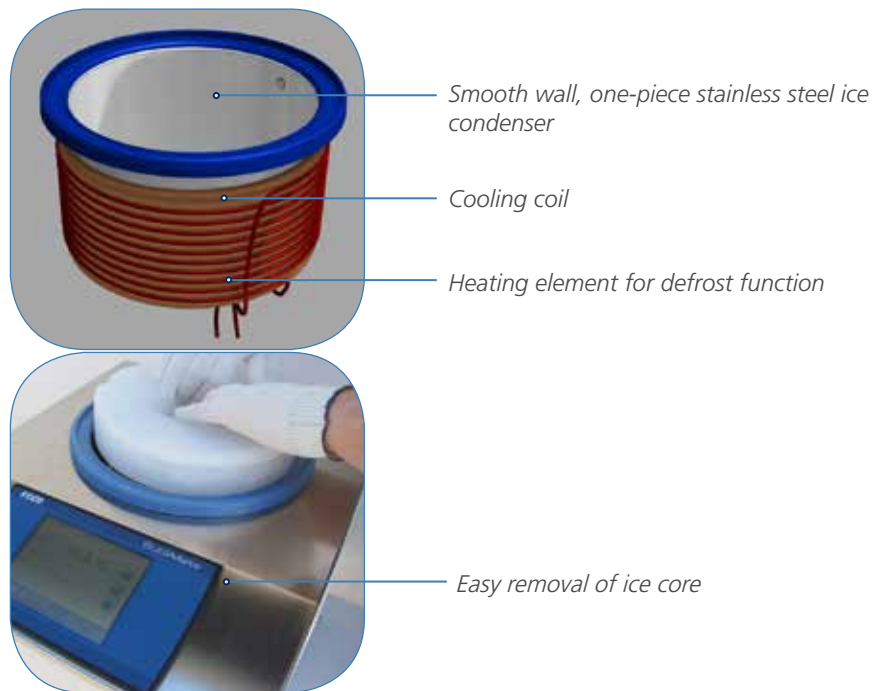
Sublimite®

Bench Top Laboratory Freeze Dryers

KEY FEATURES

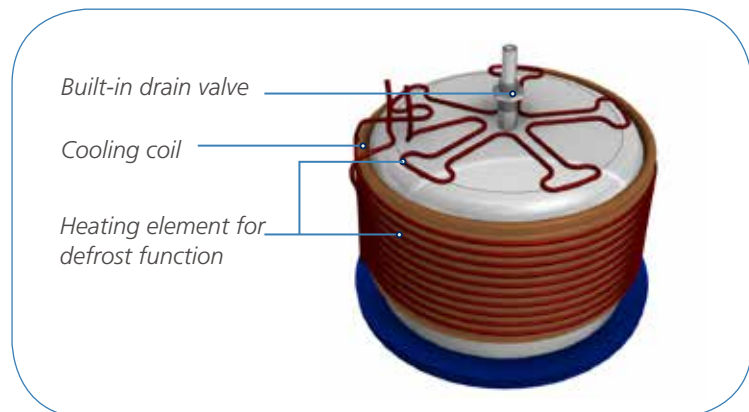
LusterClear™ fully flushed and clean ice condenser surface design

All units employ a smooth wall and a one-piece stainless steel ice condenser, which not only protects the cooling coils from damage during ice core removal, but also offers a large surface area for the rapid trapping of vapour. This leads to better mass transport and vapour flow within the system, thereby improving the freeze drying process time and delivering fast, efficient and reproducible freeze drying performance.



IceOut™ Active Defrost System

A simple active-heat defrost system ensures a quick and simple ice core removal at the end of the cycle, allowing for back-to-back-drying cycles. A built-in drain valve allows for simple draining.



5

SmarTouch™ Large Touchscreen Control Technology

- The instrument-grade precision platinum temperature probe and pressure sensors are finely tuned and tested to ensure the most reliable readout and longest operating lifespan possible. Minimum pressure measurement can reach 0.001 mbar.
- Efficient refrigeration system and tuned control ensure fast cooling time and stable temperatures once the set point is achieved.
- Warning message on touchscreen and mutable alarm remind user not to open vacuum line before the condenser reaches the correct temperature and pressure, therefore protecting the pump and the sample.
- Diagnostic functions provide access to condenser's historical temperatures and pressures with sensor read-outs to simplify service.
- A user-friendly interface with touchscreen controller offers a range of simple sub-menus for freeze drying, defrosting, language selection, pressure, temperature units, data-logging files, and a real-time clock.



Placed on the front of the unit, the clear, bright LCD display is easy to see and protected by a raised lip and seal from any drips due to condensation from flasks on drying manifolds.



Features clear readouts of both temperature and pressure for process guidance and sample security.

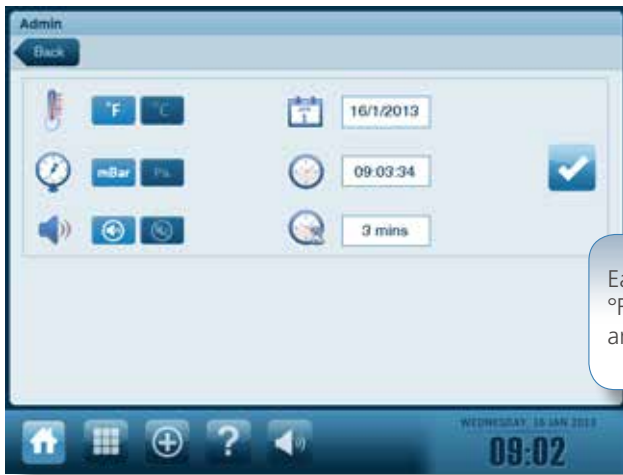
6



A security password can be set up as required to restrict access to the menu screen for added cycle safety.

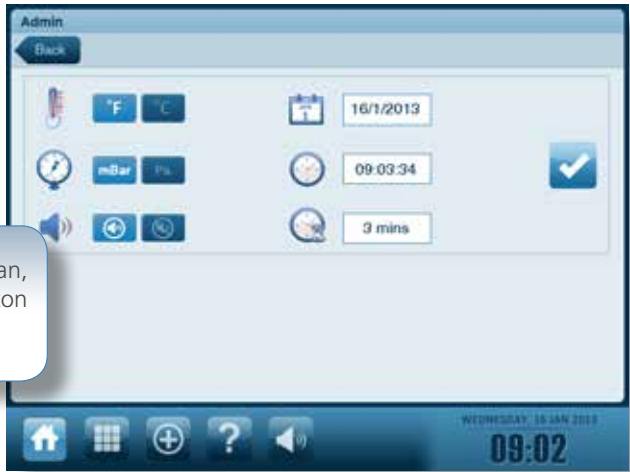
Data-logging files and a real-time clock can be easily accessed from the main menu.





Easy settings allow users to choose unit of temperature (°C or °F), unit of pressure (mBar or Pascal), change date and time, and enable/set ring-back timer.

Available menu languages include English, German, Italian, Spanish, and French. Just press the desired language button and the save button.



Other Superb Features

The condenser utilises large 1/2 HP cooling compressors with a conventional refrigeration system for optimum cooling. This guarantees sufficient cooling capacity to maintain the low temperatures needed, even under heavy loads when large sample numbers are dried.

Compact units with small footprints take up less valuable bench space and can also be mounted on trolleys for ease of re-location anywhere in the laboratory.

Pre-freeze function allows sample freeze in the condenser before freeze drying.

All gases used are CFC- and HCFC- free to meet the demands of global market requirements.

Low energy consumption makes the system more environmentally friendly.

Low noise level results in quieter operation.

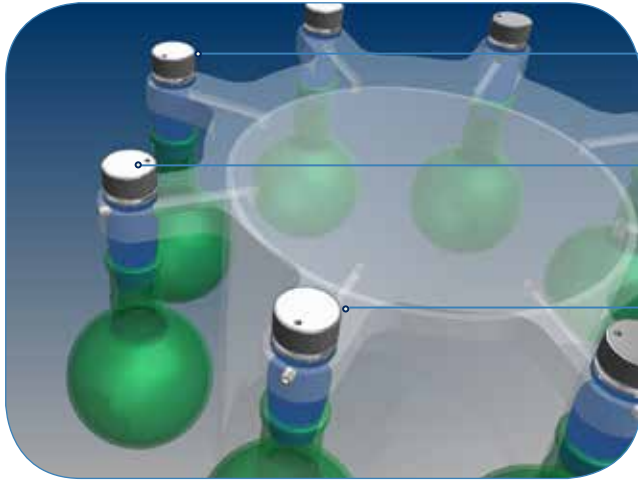
Conventional refrigeration system uses well tried technology for optimum cooling and easy service.

Worldwide sales and service support.



ACCESSORIES AND OPTIONS

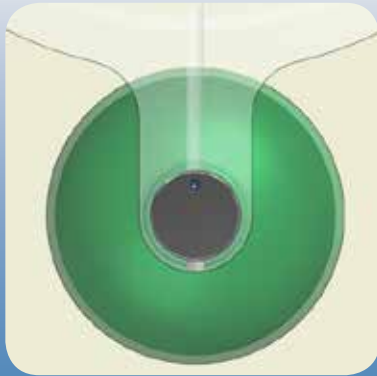
An innovative new EzySeal™ rubber valve design facilitates easier flask fitting, sealing, drying, and removal.



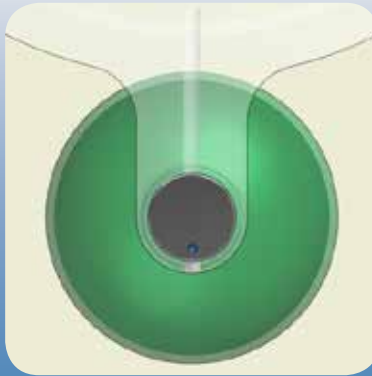
Closed in both directions

Opened to vacuum system for freeze drying

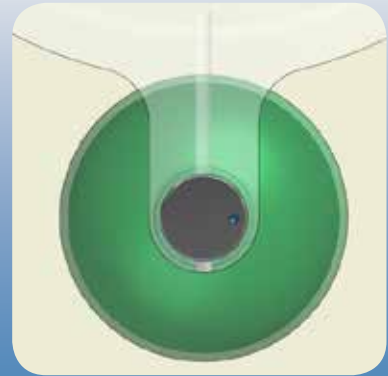
Closed to vacuum system, opened to sample product (vacuum release)



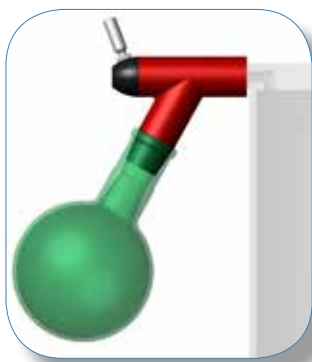
Closed in both directions



Opened to vacuum system for freeze drying



Closed to vacuum system, opened to sample product (vacuum release)



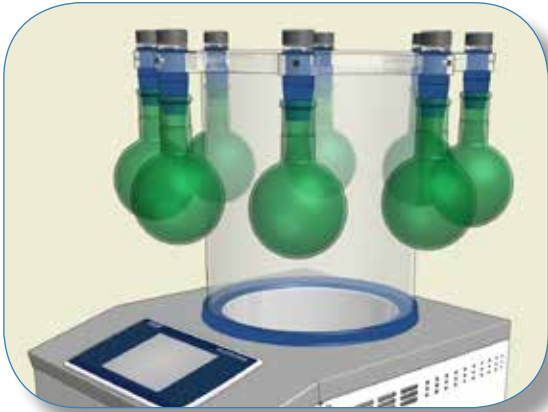
Normal Design



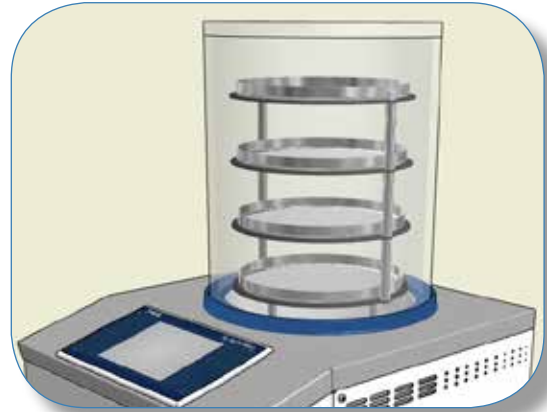
EzySeal™ Design

- The valves are vertically installed to avoid the sample weight causing leaks between the flask and rubber valve.
- The flasks are placed closer to the chamber, allowing a more compact size of the whole unit, as well as straight and efficient freeze drying.
- Unique open/close knob offers easy and user friendly operation.
- Only two parts need to be assembled and sealed, which provides better performance as fewer parts minimize leaking possibility.

A wide choice of manifolds, chambers, shelves and trolleys are available to help simplify your freeze drying.



Acrylic Jar with valves for flask freeze drying
6360004



Flat cover acrylic jar 6360006 with Shelf system
6360007



Shelf systems are available for drying in trays or vials
6360007



Stand with wheels and brakes provide ease of relocation anywhere in the laboratory
6360008



Mini Shelf systems are available for drying of small sample, which keeps the sample in lower than -55°C before freeze drying
63600016



Simple glasses cover for mini shelf system
63600017

Various vacuum pumps and related accessories are available.



RV5 Two Stage Rotary Vane Vacuum pumps, 1HP,
Low noise dbA 48, 115/230V, 50/60Hz,
6360010



EMF10 Mist filters capture oil mist from the outlet of pumps,
99.999% DOP test and are azide proof
6360011



Ultragrade® Oil for vacuum pump, 1L , The anti-oxidants included in the
oils enable the pump to withstand high operating temperatures without
oil degradation, so extending intervals between oil changes.
6360014



Manual vacuum valve between the condenser and the vacuum pump allows for
separate condenser cool-down and vacuum pump warm-up result in an efficient
start-up sequence.
6360012



Spare Pirani vacuum gauge (pressure sensor), Sublimate equipped
pressure sensor as standard, customer can order spare for future
replacement
6360015



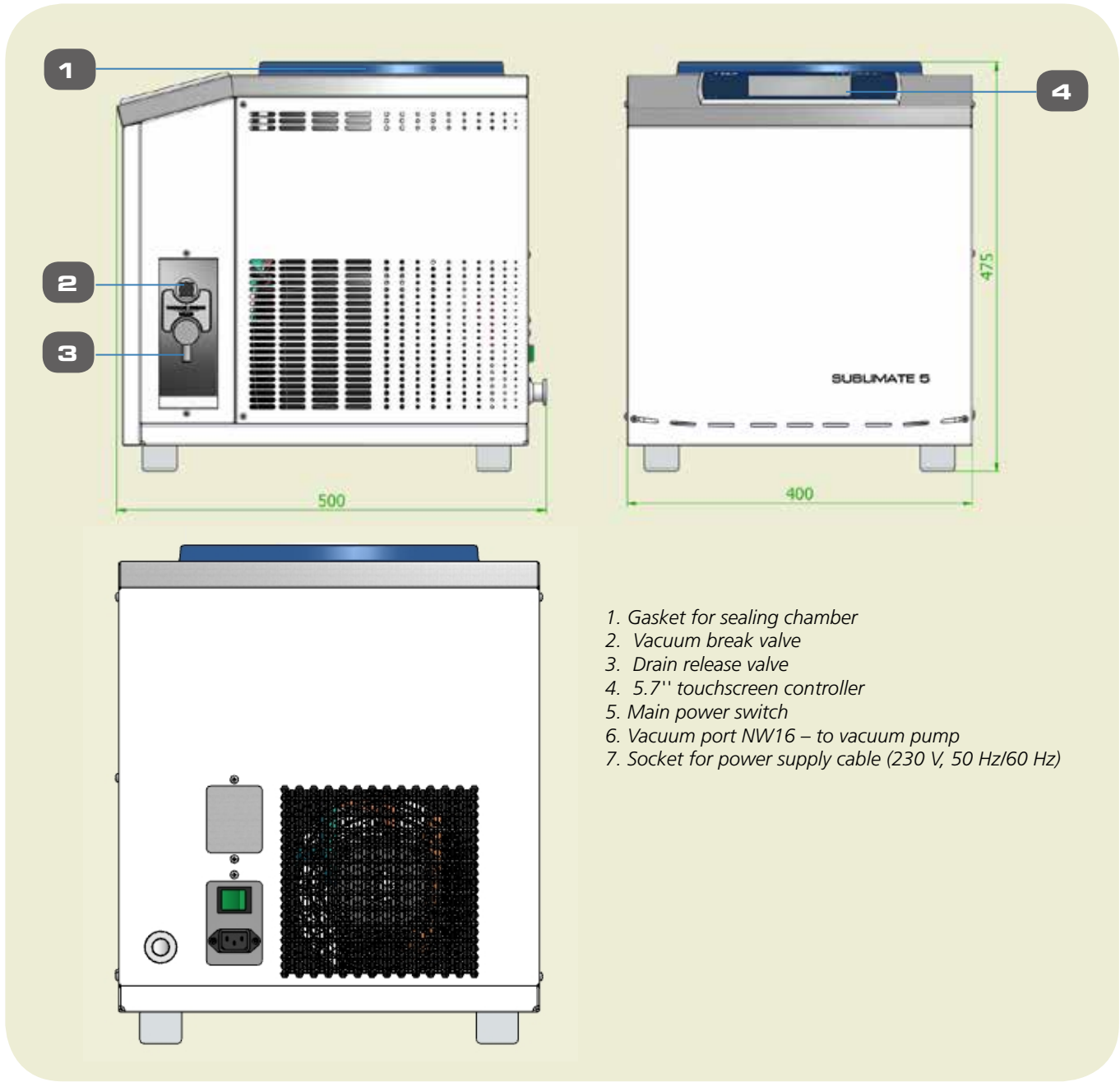
Vacuum 1.5m hose, including standard flange for both sides
6360013



High quality vacuum grease for sealing purposes, 150g/Tube
6360009



TECHNICAL SPECIFICATIONS



- 1. Gasket for sealing chamber
- 2. Vacuum break valve
- 3. Drain release valve
- 4. 5.7" touchscreen controller
- 5. Main power switch
- 6. Vacuum port NW16 – to vacuum pump
- 7. Socket for power supply cable (230 V, 50 Hz/60 Hz)

ORDERING INFORMATION

ITEM CODE	DESCRIPTION
FDL-2S8	SubliMate® 2 Bench-Top Laboratory Freeze Dryers, 2 kg, -55 °C, 220-240 VAC 50/60 Hz
FDL-5S8	SubliMate® 5 Bench-Top Laboratory Freeze Dryers, 5 kg, -55 °C, 220-240 VAC 50/60 Hz
FDL-5L8	SubliMate® 5LT Bench-Top Laboratory Freeze Dryers, 5 kg, -90 °C, 220-240 VAC 50/60 Hz

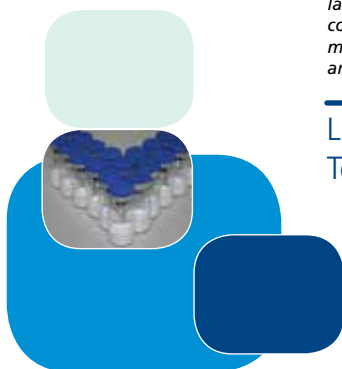
GENERAL SPECIFICATIONS, SUBLIMATE® BENCH TOP LABORATORY FREEZE DRYERS

Model Code	FDL-2S8	FDL-5S8	FDL-5L8
Maximum Ice Condenser Capacity	2 kg	5 kg	5 kg
Condenser Area	0.1 m ²	0.15 m ²	0.15 m ²
Condenser Volume	3.5L	7 L	7L
Ultimate Condenser Temperature	-55 °C	-55 °C	-90 °C
Pressure Measurement Range	0.001 ~ 100 mbar		
Temperature Measurement Range	-60 °C ~ 50 °C		-110 °C ~ 100 °C
Material of The Condenser Chamber	AISI 304 mirror polished		
Display	5.7" Touchscreen		
Cooling Media	CFC free		CFC free
Compressor	1/2HP X 1 piece		1/2HP X 2 pieces
Electrical Rating / Full Load Amps	230 V, 50/60 Hz, 1Φ / 12A / 20A		
Ice Capacity (24hrs / Max	2KG/2KG	2.5kg / 5kg	
Max. Power Consumption	330 W		630 W
External Dimensions (Wxdxh)	400 x 500 x 395 mm (15.7" x 19.7" x 15.6")	400 x 500 x 475 mm (15.7" x 19.7" x 18.7")	400 x 500x 475mm (15.7" x 19.7" x 18.7")
Net Weight	36kg	40kg	40kg
Shipping Weight	41kg	46kg	46kg
Shipping Dimensions (W X D X H)	495x573x395 mm (19.5" x 22.5" x 15.6")	495 x 573 x 543 mm (19.5" x 22.5" x 21.3")	495 x 573 x 543 mm (19.5" x 22.5" x 21.3")

Note: Performance specifications are based on units operating at an ambient room temperature of approximately 20 °C. And Esco keep the right to adjust any Specification, please consult us to get more information.

The Esco Group of Companies is a global life sciences tools provider with sales in over 100 countries. The group is active in lab equipment, pharma equipment and medical devices. Manufacturing facilities are located in Asia and Europe. R&D is conducted worldwide spanning the US, Europe and Asia. Sales, service and marketing subsidiaries are located in 12 major markets including the US, UK, Singapore, Japan, China and India. Regional distribution centers are located in the US, UK, and Singapore.

Life Science • Chemical Research • Assisted Reproductive Technology (ART) • Pharmaceutical Equipment • General Equipment



ESCO

WORLD CLASS. WORLDWIDE.

Esco Technologies, Inc. • 2940 Turnpike Drive, Units 15-16 • Hatboro, PA 19040, USA
Toll-Free USA and Canada 877-479-3726 • Tel 215-441-9661 • Fax 215-441-9660
usa.escoglobal.com • usa@escoglobal.com

Esco Micro Pte. Ltd. • 21 Changi South Street 1 • Singapore 486 777
Tel +65 6542 0833 • Fax +65 6542 6920 • mail@escoglobal.com
www.escoglobal.com