



CoolRepair

Scientific UK Ltd

DuoFreez™ U500

SMART-LAB™ -86°C ULT Freezer

Innovative technology to improve the quality for laboratory.



DAIHAN
Scientific
YOUR PARTNER *in* LABORATORY

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DUOFREEZ™ U500

SMART-LAB™ -86°C ULT FREEZER



**Innovative
Dual Freezing
System**

**SMART
Connectivity**



**Green, Energy
Efficient
Technology**

PRODUCT FEATURES:

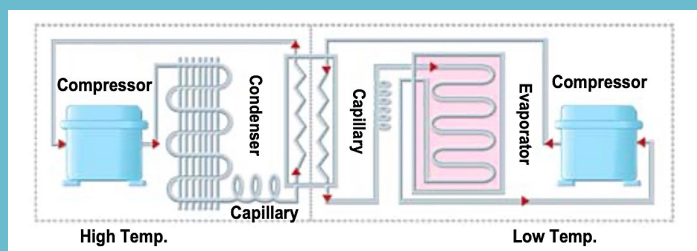
- * High quality insulation panel and inner doors.
- * Filter free mechanisms, lowering compressor generated heat.
- * Automatic vacuum breaker, enabling easy door re-opening.
- * Self-diagnostic functionality, including built-in warnings and alarms.
- * Automatic temperature data recording.
- * Eco Mode for low power consumption and energy saving.
- * Built-in storage and inventory management.
- * Ergonomic, 7" full touch screen LCD controller.
- * Robust, flexible door handle design.
- * UL, CUL and CE Certified.

DUOFREEZ™ FREEZING SYSTEM

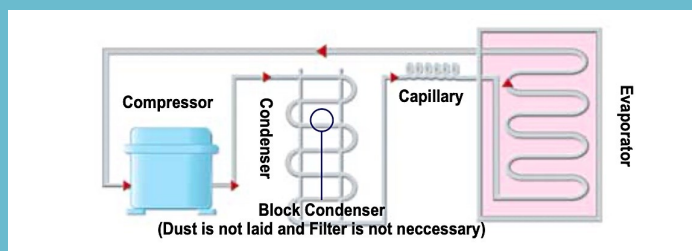
INNOVATION AT ITS BEST

DAIHAN Scientific ULT freezers are unique in the way they are built.

Whilst most alternative ULT freezers are designed using a typical cascaded compressor system that employs two compressors working simultaneously, those built by DAIHAN Scientific use a single set of compressor instead. Specifically, the 'Simplified Hi-Efficiency Freezing System'.



Typical Cascaded Compressor System



Simplified Hi-Efficiency Freezing System

As illustrated above, the overall freezing mechanism for DAIHAN Scientific ULT freezers is far less complex than that of the typical cascaded compressor system.

In fact, by using this Simplified Hi-Efficiency Freezing System in all ULT freezer models, DAIHAN Scientific overcomes the technical complexity of the typical cascaded compressor systems and simplifies the freezing mechanism all together. Critically, with no negative impact on overall performance.

They also drive real value to end user by:

- reducing energy consumption;
- minimising noise pollution;
- improving equipment sustainability and operational lifetimes;
- increasing efficiency;
- ensuring user safety; and,
- mitigating the risk of operating failures.

DOUBLE THE SECURITY AND TWICE THE RELIABILITY

DAIHAN Scientific offers two unique ULT freezer models, both employing the Simplified Hi-Efficiency Freezing System overleaf. They are:

- **The UniFreez™ ULT Freezer**

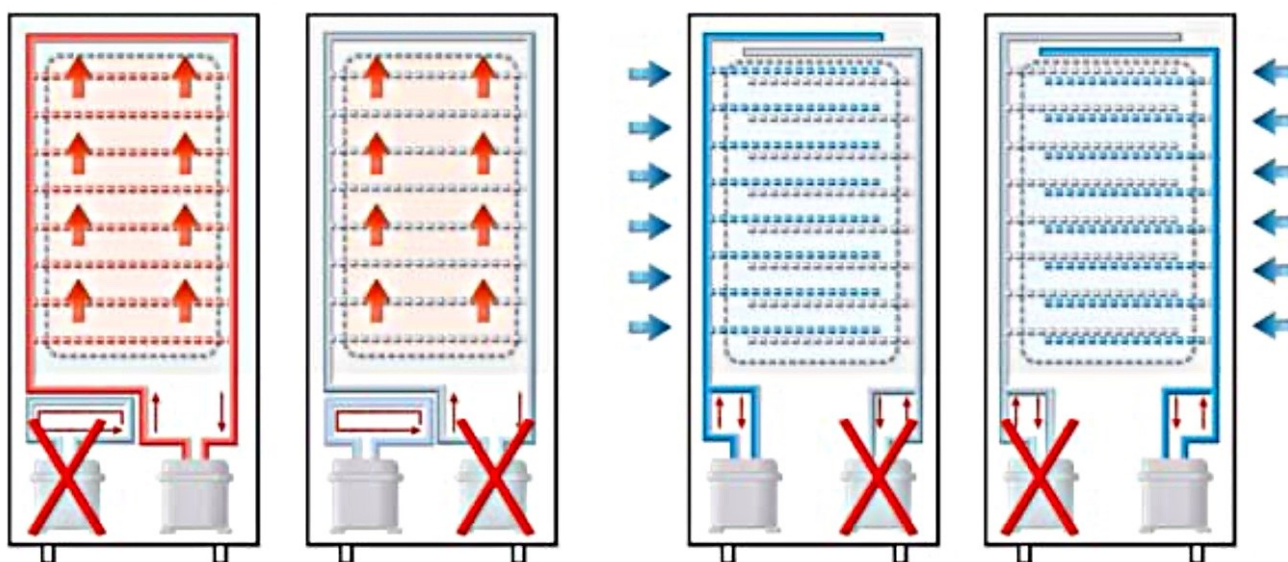
The most innovative freezing system in the world. It employs one single Simplified Hi-Efficiency Freezing System to maintain an internal ULT freezer temperature of -86°C .

- **The DuoFreez™ ULT Freezer**

An extremely stable freezing system boasting two independent Simplified Hi-Efficiency Freezing Systems which enables an internal ULT freezer temperature of -90°C .

A LEAGUE OF ITS OWN

The “DuoFreez™” ULT Freezer is in a league of its own, offering users extraordinarily high levels of temperature stability, operational continuity and sample security. This by using two compressors (i.e. Simplified Hi-Efficiency Freezing Systems) that run simultaneously but independently of each other; as illustrated below.



WHO CHOOSE THE DUOFREEZ™ FREEZING SYSTEM



Back Up Compressor

In the event one compressor fails, the remaining compressor will continue to operate securing an ongoing internal temperature of -80°C.



Rapid Temperature Recovery

Operating two compressors provides the fastest temperature recovery time in reaching -86°C compared with alternative products available today.



Wide Temperature Range

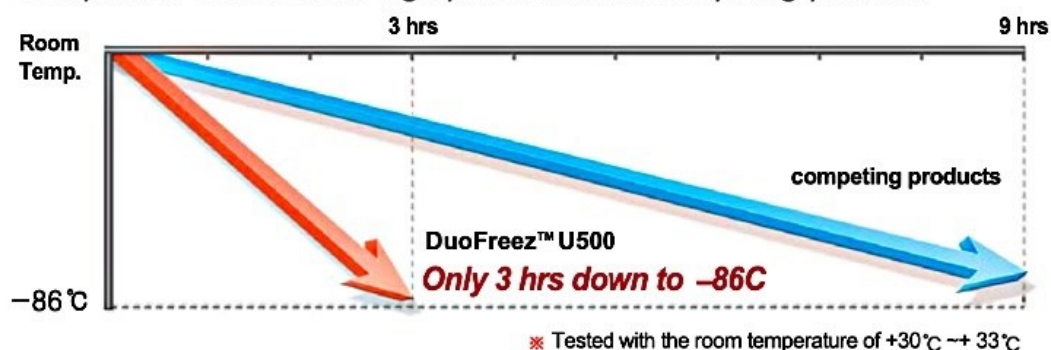
Selecting a ULT freezer with two compressors allows the internal temperature to reach as low as -90°C, if required.



Unrivalled Operational Stability

The innovative, dual compressor DuoFreez™ freezing system provides an unprecedented level of stability, robustness and fault tolerance; double the level in fact, of that provided by a single compressor ULT freezer.

► Comparison Data of Freezing Speed between competing products



► Time Taken to Reach Down to Ultra Low Temperature

Model	DuoFreez™			UniFreez™				
	U300 308Lit.	U500 503Lit.	U700 683Lit.	U300 308Lit.	U500 503Lit.	U700 82Lit.	WUF-41 375Lit.	WUF-51 438Lit.
Temp.	Upright Type			Chest Type				
- 80 °C				240min.	330min.	150min.	120min.	150min.
- 86 °C	160min.	180min.		270min.	420min.		210min.	270min.
- 90 °C			240min.			270min.		
- 95 °C	270min.	300min.						

※ Tested with the room temperature of 30 ~ 33 °C



POWERED BY THE SMART-LAB™

The DuoFreez™ U500 -86°C ULT Freezer is continually evolving, like your smart phone in hand and smart TV at home.

All DuoFreez™ models come equipped with a 7-inch, full-touch screen LCD controller, integrated Smart-Lab™ System and internet connectivity as standard.

Unique and innovative to the entire DAIHAN Scientific ULT freezer range, this progressive system provides a simple, easy to control, secure and convenient solution to self-diagnostics, real-time monitoring and data recording. Storage and inventory management too.

Using a smart phone, tablet or laptop/computer, users can easily connect their chosen device to the DuoFreez™ U500 via the WiRe™ App and/or Web Service.

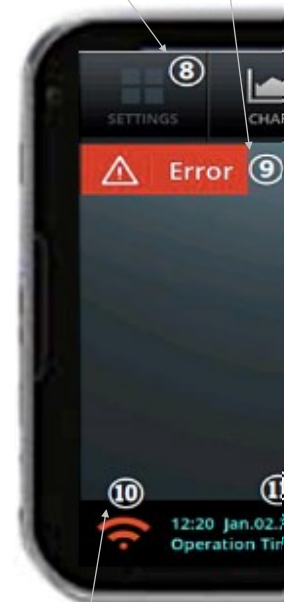
The Smart-Lab System™ provides real time, immediate access to your equipment - anywhere, anytime.

NOTE: Smart-Lab™ functionality is subject to availability. For further details, speak to a member of our team today.

8 SETTINGS

Set up and adjust various Functions for the unit.

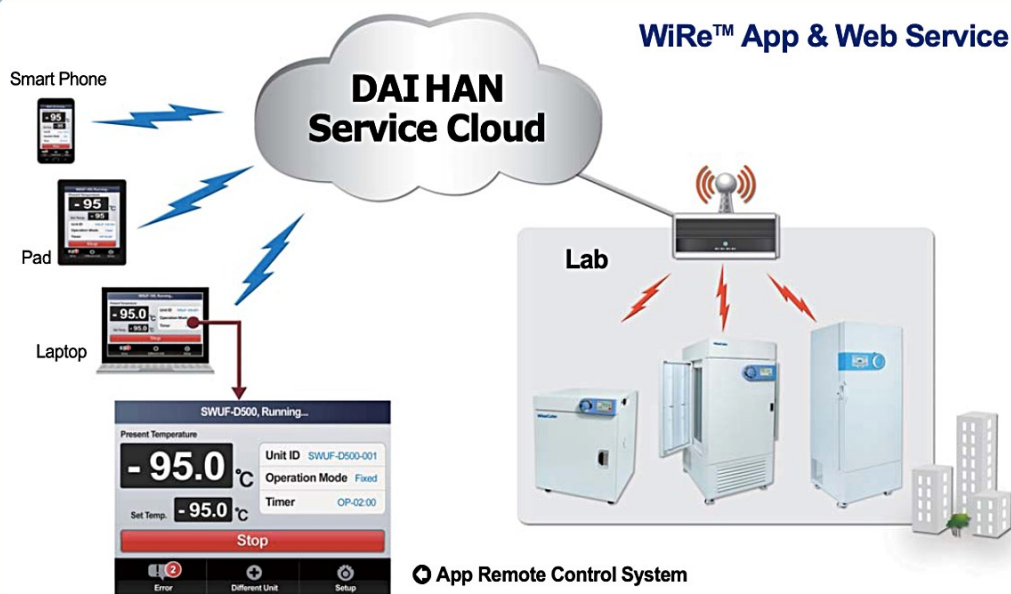
9



10 WIFI STA

Displays the connectivity

WiRe™ App & Web Service



7 CHART

Monitor the operating status via the chart.

4 LCO₂

Prepare for a disaster or emergency by injecting LCO₂.

6 OFF SET

Set the calibration value for the temperature.

3 START/STOP

Adjust the start and stop operation.

5 STORAGE

Enter storage locations for inventory management.

2 CURRENT TEMP

Display the current operating temperature.

ERROR

Notifications in the event of an error.



12 OPERATIONAL INFO.

Shows the state of operation via the LED lamp.

1 SET TEMPERATURE

Check and adjust the temperature setting.

13 ON/OFF ICON

Displays the operating status of the unit.

11 DATE

Displays the current date and time.

TUS

State of internet

GREEN TECHNOLOGY

RoHS COMPLIANT

All DuoFreez™ U500 Smart-Lab™ -86°C ULT Freezers are RoHS Certified.

The RoHS (Restriction of Hazardous Substances) is the directive on the restriction of the use of certain hazardous substances (Pb, Cd, Hg, Hex-Cr, PBB, PBDE) commonly used in electronic and electronic Equipment (2011/65/EU).

39% COST & ENERGY SAVINGS

The Simplified Hi-Efficiency Freezing System, unique to DAIHAN Scientific, consumes less power and drives greater cost savings than other typical, -86°C ULT freezers.

Consumption for a Typical -86°C Freezer*

Power Consumption: 6,570kWh / year
CO₂ Output: 3,212.07 kgCO₂ / year
Electricity Cost: USD 1,051.20

Consumption for a UniFreez™ U500 Freezer*

Power Consumption: 4,015kWh / year
CO₂ Output: 1,962.93 kgCO₂ / year
Electricity Cost: USD 642.4

* Calculated by the electricity-specific emission factors sourced from the IEA (2011a).



PRODUCT SPECIFICATION

FUNCTIONALITY

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Eco Mode Function	Yes	Yes
High / Low Temperature	Yes	Yes
Remote Alarm System	Yes	Yes
Alerts for:		
Power Failure	Yes	Yes
Sensor Errors	Yes	Yes
Low Battery	Yes	Yes
High Ambient Temp.	Yes	Yes
Door Ajar	Yes	Yes
Automatic Vacuum Breaker	Yes	Yes
UL, CUL and CE Certified	Yes	Yes

ADDITIONAL FEATURES

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Caster Wheels	Yes	Yes
External Sensor Hole	Yes	Yes
Shelves / Inner Doors	3	4
Temperature Recorder	Yes	Yes
Racks & Boxes	Optional	Optional

TECHNICAL DATA

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Capacity	503	503
Cabinet Type	Upright	Upright
Freezing System	DuoFreez™	DuoFreez™
Compressor	Hermetic Type	Hermetic Type
Condenser Type	Block (No Pin, Filter Free)	Block (No Pin, Filter Free)
Refrigerant	Natural (CFC Free)	Natural (CFC Free)

PERFORMANCE

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Cooling Performance	-86°C	-86°C
Temperature Range	-65°C to -95°C	-65°C to -95°C
Temperature Sensor	PT 100	PT 100

CONTROL

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Controller	Smart-Lab™	Smart-Lab™
Display	7" Full Touch Screen LCD	7" Full Touch Screen LCD

DIMENSIONS

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Net Weight (kg)	300	300
Gross Weight (k)	392	392
Interior Dimensions (WxDxH)	6,000 x 6,400 x 13,100 mm Material: Stainless-Steel	6,000 x 6,400 x 13,100 mm Material: Stainless-Steel
Exterior Dimensions (WxDxH)	8,400 x 8,900 x 19,000 mm Material: Power Coated Steel	8,400 x 8,900 x 19,000 mm Material: Power Coated Steel
Packing Dimensions (WxDxH)	11,600 x 12,400 x 22,200 mm	11,600 x 12,400 x 22,200 mm

ELECTICAL DATA

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Power Supply (V/Hz)	220-240 / 50	220-240 / 50

POWER CONSUMPTION

	4 Door Model SWUF01500 DUO	5 Door Model SWUF01550 DUO
Dual Mode (w/h)	507	507
Eco. Mode (w/h)	458	458

Cool Repair Scientific UK

ABOUT US

TRUSTED BY:





The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA

HOSPITAL
INNOVATIONS

ICR The Institute of
Cancer Research



GlaxoSmithKline

LEADING UK REFRIGERATION SPECIALIST

With over 30 years' experience, we are trusted by academic institutions, research facilities, hospitals, clinics, pharmaceutical companies, clinical trial centres and biobanks (to name a few) across the UK.

Renowned for delivering exceptional customer service and a responsive, reliable, trustworthy and effective service, trust us when we say:

"You are in safe hands with Cool Repair Scientific UK as we draw on a wealth of knowledge and experience to deliver exactly what you need, when you need it."

A TRUE ONE-STOP-SHOP

We support the entire lifecycle of laboratory refrigeration equipment, offering a true 'one stop shop' for all your laboratory needs. Not only do we supply an extensive range of refrigeration equipment, from +4°C fridges to low temperature -40°C, -80°C ULT and even -190°C liquid nitrogen freezers, we offer a suite of complementary services too.

To that end, we hold ISO9001:2008 accreditation as well as an Human Tissue Authority (HTA) licence through our sister company, MTS Cryo Stores UK, for the storage and transport of human application and research material, licence number: 22499. For further details, feel free to get in touch.

PURPOSE-BUILT FACILITIES

Based in Nottingham, we are well positioned to arrange the distribution and supply of refrigeration equipment, as well as supporting services, for clients across the UK. Our purpose-built storage facilities boast:

- 24:7 security monitoring and call-our service by specialist, local refrigeration engineers;
- backup freezers and standby units in the event of equipment failure;
- permanent diesel generator in the event of a failed power supply;
- continuous temperature monitoring and alarm systems;
- equipment calibration with UKAS traceable probes; and,
- electronic sample inventory management system.

COMPLEMENTARY SERVICES



SERVICING, MAINTENANCE & CALIBRATION

Proven to extend the lifespan and improve performance of refrigeration equipment. We offer a variety of servicing and maintenance contracts, covering everything from the basics to the most comprehensive of equipment health checks.



BREAKDOWN COVER

A strong measure for any contingency plan. Our breakdown cover acts as a form of insurance, or extended warranty, against future repairs and callout charges. Covering a wide variety of manufacturers and models, we provide cover for equipment up to 15 years old.



EQUIPMENT HIRE & TRANSPORTATION

An effective solution to short and long-term projects, temporary overfills, freezer defrosting and equipment. Using our mini-fleet of specialist transport vehicles, we can easily deliver our hire equipment to locations across the UK. Alternatively, we are able to arrange prompt collection and/or delivery of your very own equipment,.



DISASTER RECOVERY

Critical to safeguarding the contents of any refrigeration equipment, our disaster recovery service is designed to protect you and your material in the unfortunate event of a disaster. Highly flexible, our solutions are tailored to you and your requirements. We can help you protect anything from a single box of samples to the contents of entire fridges/freezers.



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