

Certification by...

- ☑ ISO 9001 Certified
- ☑ PL Insurance
- ☑ Validation(IQ&OQ) Service



Innovative Technology of Ultra-Low Temperature Freezer

WiseCryo[®] WUF-Series



WUF Models -86 °C



WUF-D Models -95 °C



Sales & Basic A/S:
By the Nearest Official Distributors.

Innovative Technology of Ultra-Low Temperature Freezer



Best Cost-Performance, Single SFS™ models, WUF-Series
Only single freezing cycle works to reach down to -86°C

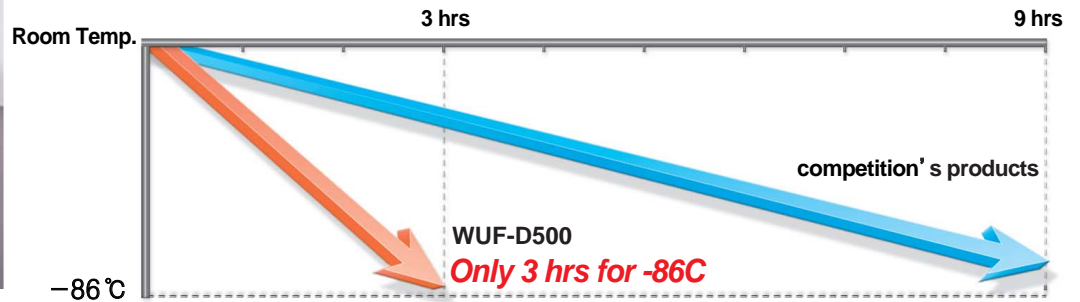


Highest Stability System, Dual SFS™ models, WUF-D Series
Extraordinary High Stability System powered by two SFS™ working independently e -95°C
Realization of doubled stability and robustness e Fault Tolerance System
Fast and Powerful Freezing ! Fast Recovery of Target Temperature

Innovative SFS™ (Simplified Freezing System)

◆ **Fastest Freezing Speed!**

🔴 Comparison Data of Freezing Speed between competition's products



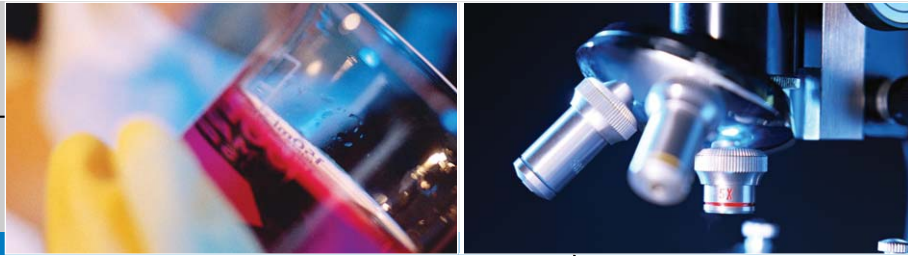
※ Tested with the room temperature of 30 ~ 33°C

🔴 Time taken to reach down to ultra low temperature

Model	Dual SFS(Single Freezing System)			Single Freezing System				
	WUF-D300 308Lit.	WUF-D500 503Lit.	WUF-D700 683Lit.	WUF-300 308Lit.	WUF-500 503Lit.	WUF-80 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



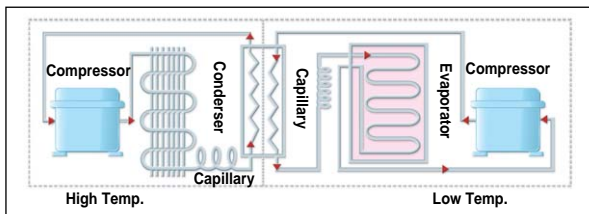


Innovative SFS™ (Simplified Freezing System)

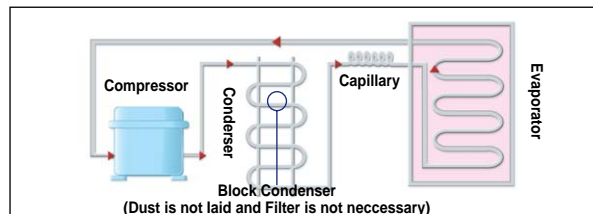
Most of the ultra-low temperature freezers have two compressors cooperating with each other to drop the internal temperature down to -86°C as shown in the following figure, and its overall freezing mechanism is very complicated. But, our **new SFS™** uses only single compressor. Even though single set of a compressor, a capillary tube, a condenser and an evaporator is incorporated, it ensures the temperature down to -86°C by an advanced control technology of the compressor and the process of **specialty mixed refrigerants**. SFS™ overcomes technical complexity of the typical cascaded double compressor system. Simplification of the freezing mechanism and electricity minimizes the noise, power consumption and failure.

- ▶ Only single freezing cycle works to reach down to -86°C
- ▶ Advanced Compressor Control Technology + Specialty Mixed Refrigerants
- ▶ Dramatically lowered noise, power consumption and fail rate
- ▶ Oil separator free, Expansion tank free
- ▶ Block condenser against typical pin-type condenser : Dust free, Filter free
- ▶ Much simpler mechanism

Simplification of the Freezing Mechanism : Easy Maintenance



Typical Cascaded Compressor System
Two Freezing cycles contribute Complicated mechanism



New **Simplified Freezing System**
Single freezing cycle works only!!



Doubled Stability and Robustness!! Based on Dual SFS™

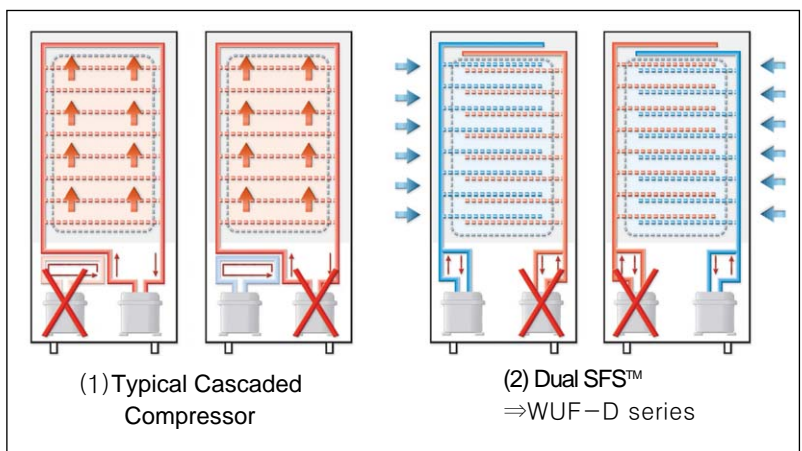
We offer an extraordinary high-stability system powered by two **Simplified Freezing Systems** operating independently. Normally, both of the two compressors are running, and it drops the temperature inside the storage chamber down to -95°C . Even if one SFS fails in operation by a certain unexpected problem, the other SFS still works and maintains ultra-low temperature down to -80°C . It means one SFS works as a 'backup' of the other SFS.

This innovative mechanism realizes doubled stability, robustness and fault tolerance, which are the most important feature of the ULT freezer needed by all the customers.

▶ **The lowest temperature of -95°C is ensured by Dual SFS™ system running independently and simultaneously**

▶ **Fault Tolerance System**
- Realization of doubled stability and robustness

▶ **Incomparable Fast and Powerful Freezing**
- Fast Recovery of Target Temperature



(1) Complicated mechanism

- If one of compressor fails, temperature would go up

(2) Even if one the two SFS fails to run, the other is still running properly

- Minimum -80°C

Innovative SFS™ & (Simplified Freezing)



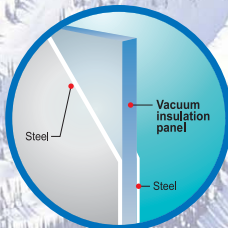
• Triple-layer Gasket for perfect insulation.



• Automatic Vacuum Dissolver making door opening easy



• Robust & Flexible designed Power Door Handle with Locking function.



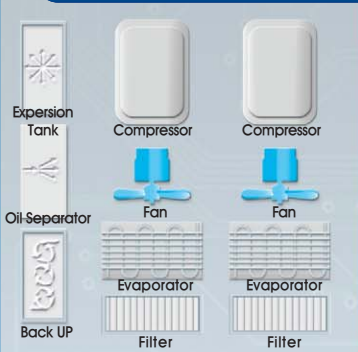
• Vacuumed insulator and inner doors ensure defrosting around outer door

• Filter-Free Mechanism significantly lowers heat generated by the compressor. Block Condenser (without pins) realize filter free

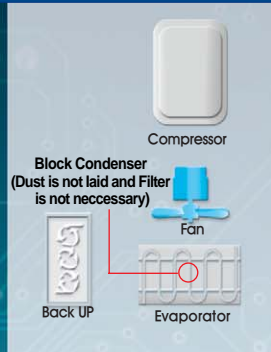


WUF - D500

Comparison of Inside formation : SFS™ New technology VS competition's products.



► Complicate competition's products.



► Innovative SFS™

- Simplified Freezing System
- Much Simpler
- Oil separator free, Expansion tank free
- Block condenser against typical pin-type condenser - Dust free, Filter free

Wisdom WUF Models

Daul SFS™ (Freezing System)



- **Inner door handle**
- easily opened against frosting.



- **Powerful Touch-Screen TFT LCD Controller**
- Easy setting, Temperature Graph, Storage function (USB interface), etc.

- **CFC-free**
HFC refrigerants are used.

- **Maintenance-free cooling device with fully Hermetic High-Capacity compressor.**

- **Alarm**
Built in standard warning and alarm functions.



- **Standard Back up Battery System for Data logger and Alarm System.**

WUF - 31

- **Temperature Recorder (Optional)**
Large and vivid LED display



- **Remote Wire/Wireless Alarm System (Optional)**

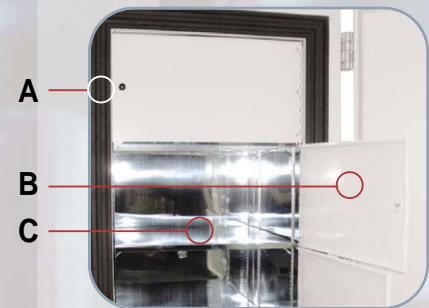


CO₂ back up system (Optional)

► Freezer Accessories



※ See Page 10 for Freezer Accessories



Inside Structure

- A** High-quality molded thermal insulation material is filled between outer housing and inner chamber, of which the structure ensures the stability of the internal temperature and minimize the frost.
- B** Four inner doors are equipped for better thermal insulation and efficient use of the storage chamber. They are made of powder coated stainless steel, so it is stronger for anti-frost.
- C** One piece of internal storage chamber made of high-quality stainless steel is divided into four sub chambers by three shelves, so it's very convenient to efficiently fill the storage boxes inside.

» Ultra-Low Temperature Freezer

“DAIHAN” **WiseCryo® WUF-D** Digital Ultra-Low Temperature Freezer, Upright Type NEW
 Dual Simplified Freezing System, Non-Freon Refrigerants, 308-/393-/503-/683-Lit., -86/-95 °C, “PL insurance”



WUF - D700



Dual SFS™ Simplified Freezing System

● ● ● Applications & Features

- **Simplified Freezing System**
: can realize robust and long life time.
- **Dual SFS**(Simplified Freezing System) can down to -95°C and High-stability system can be offered.
: If one SFS fails in operation, the other SFS still works and maintains down to -86°C
- Automatic Vacuum Releasing System.
- Easy to Re-Open The Door.
- Easy & Good Performance TFT-LCD Touch Screen Controller
- Robust & Flexible designed Handle Door
- Easy Monitoring and Control - Eye level Controller
- CFC-free Refrigerants are used
- Use of Block Condenser removes filter and causes of related failure.
- Filter-free Mechanism lowers heat generated by the compressor
- Easy Maintenance and Improved Performance
- Vacuum Insulator and Inner Doors ensure defrosting around outer door.
- Built in Standard Warning and Alarm Functions
- RS232 Communication Link and a Remote Control Software is supported
- PL(Product Liability) Insurance

● ● ● Specification

Model		WUF-D300	WUF-D400	WUF-D500	WUF-D700
Dimension (w×d×h)	Internal (mm)	470×500×1,310	600×500×1,310	600×640×1,310	815×500×1,310
	External (mm)	780×898×1,980	910×898×1,980	910×1038×1,980	1,105×1,058×1,980
Capacity		308 Lit.	393 Lit.	503 Lit.	683 Lit.
Capacity of Rack(Max.)		15Places, 12ea total 180box	15Places, 16ea total 240box	20Places, 16ea total 320box	20Places, 20ea total 400box
Temp. Range		-95°C ~ -65°C (When external temperature is 30°C and 70% humidity)			-86°C ~ -65°C
Controller		Digital Controller (Alarm Warning) with TFT LCD			
Compressor		Hermetic Type			
Condenser Type		Block Condenser			
Refrigerant		HFC (CFC Free Refrigerant System)			
Material	Internal	Stainless Steel			
	External	Steel Plate with Powder Coating			
Weight (kg)		220	260	300	320
Power Supply*		AC 220V 60Hz 1-Phase, 10A			
PL insurance					

● ● ● Ordering Information

Upright Type, Dual Simplified Freezing System

DH.WUF01300	Ultra Low Temp. Freezer, Upright, WUF-D300, 308 Lit., -95°C
DH.WUF01400	, WUF-D400, 393 Lit., -95°C
DH.WUF01500	, WUF-D500, 503 Lit., -95°C
DH.WUF01700	, WUF-D700, 683 Lit., -86°C

Optional Accessories

DH.RFU3040	Rack for “WUF-(D)300/400”, RFU3040, Box 15ea(H5×D3), W140×D430×H290mm
DH.RFU50	for “WUF-(D)500/700”, RFU50, Box 20ea(H5×D4), W140×D570×H290mm
DH.TRM10C	Temperature Recorder, TRM10C
DH.LCO2B	LCO:Back up System, LCO2B
DH.RWAS	Remote Wire/Wireless Alarm System, RWAS

“DAIHAN” **WiseCryo® WUF** Digital Ultra-Low Temperature Freezer, Upright Type NEW
 Simplified Freezing System, Non-Freon Refrigerants, 308-/393-/503-Lit., -86 °C, “PL insurance”



WUF - 500



SFS™ Simplified Freezing System

● ● ● Applications & Features

- **Simplified Freezing System** can down to -86 °C : can realize robust and long life time.
- Automatic Vacuum Releasing System. - Easy to Re-Open The Door.
- Easy & Good Performance TFT-LCD Touch Screen Controller
- Robust & Flexible designed Handle Door
- Easy Monitoring and Control - Eye level Controller
- CFC-free Refrigerants are used
- Use of Block Condenser removes filter and causes of related failure.
- Filter-free Mechanism lowers heat generated by the compressor
- Easy Maintenance and improved performance
- Vacuum Insulator and Inner Doors ensure defrosting around outer door.
- Built in Standard Warning and Alarm Functions
- RS232 Communication Link and a Remote Control Software is supported
- PL (Product Liability) Insurance

● ● ● Specification

Model		WUF-300	WUF-400	WUF-500
Dimension (w×d×h)	Internal (mm)	470×500×1,310	600×500×1,310	600×640×1,310
	External (mm)	780×898×1,980	910×898×1,980	910×1038×1,980
Capacity		308 Lit.	393 Lit.	503 Lit.
Capacity of Rack(Max.)		15Places, 12ea total 180box	15Places, 16ea total 240box	20Places, 16ea total 320box
Temp. Range		-86 °C ~ -65 (When external temperature is 30 °C and 70% humidity)		
Controller		Digital Controller (Alarm Warning) with TFT LCD		
Compressor		Complete Closed Type		
Condenser Type		Block Condenser, No Pin, Filter Free Mechanism		
Refrigerant		HFC (CFC Free Refrigerant System)		
Material	Internal	Stainless Steel		
	External	Steel Plate with Powder Coating		
Weight (kg)		180	210	240
Power Supply*		AC 220V 60Hz 1-Phase, 10A		
PL insurance				

● ● ● Ordering Information

Upright Type, Simplified Freezing System

- DH.WUF00300 Ultra Low Temp. Freezer, Upright, WUF-300, 308 Lit., -86 °C
- DH.WUF00400 , WUF-400, 393 Lit., -86 °C
- DH.WUF00500 , WUF-500, 503 Lit., -86 °C

Optional Accessories

- DH.RFU3040 Rack for “WUF-(D)300/400”, RFU3040, Box 15ea(H5×D3), W140×D430×H290mm
- DH.RFU50 for “WUF-(D)500/700”, RFU50, Box 20ea(H5×D4), W140×D570×H290mm
- DH.TRM10C Temperature Recorder, TRM10C
- DH.LCO2B LCO2 Back up System, LCO2B
- DH.RWAS Remote Wire/Wireless Alarm System, RWAS

» Ultra-Low Temperature Freezer

“DAIHAN” **WiseCryo® WUF** Digital Ultra-Low Temperature Freezer, Chest Type **NEW**
Simplified Freezing System, Non-Freon Refrigerants, 136-/237-/314-/375-/438-Lit., -86°C, “PL insurance”



WUF-31



SFS™ Simplified Freezing System

● ● ● Applications & Features

- **Simplified Freezing System** can down to -86°C : can realize robust and long life time.
- Easy Monitoring and Control - Eye level Controller
- CFC-free Refrigerants are used
- Use of Block Condenser removes filter and causes of related failure.
- Filter-free Mechanism lowers heat generated by the compressor
- Easy Maintenance and Improved Performance
- Vacuum Insulator and Inner Doors ensure defrosting around outer door.
- Built in Standard Warning and Alarm Functions
- PL(Product Liability) Insurance

● ● ● Specification

Model		WUF-11	WUF-21	WUF-31	WUF-41	WUF-51
Dimension (w×d×h)	Internal (mm)	520×450×680	850×450×680	1,100×450×680	1,300×450×680	1,500×450×680
	External (mm)	720×730×860	1,050×730×860	1,300×730×860	1,500×730×860	1,700×730×860
Capacity		136 Lit.	237 Lit.	314 Lit.	375 Lit.	438 Lit.
Capacity of Rack(Max.)		11Places, 6ea	11Places, 12ea	11Places, 18ea	11Places, 21ea	11Places, 27ea
		7Places, 3ea total 87box	7Places, 3ea total 153box	7Places, 3ea total 219box	7Places, 3ea total 252box	7Places, 3ea total 318box
Temp. Range		-86°C ~ -65°C (When external temperature is 30°C and 70% humidity)				
Controller		Digital PID Controller (Alarm Warning)				
Compressor		Hermetic Type				
Condenser		Block Condenser				
Refrigerant		HFC (CFC Free Refrigerant System)				
Material	Internal	Aluminum Plate				
	External	Steel Plate with Acrylic Acid Resin Coating				
Weight (kg)		45	55	67	73	82
Power Consumption (W)		300	400	450	500	550
Power Supply*		AC 220V 60Hz 1-Phase, 10A				
PL insurance						

● ● ● Ordering Information

Chest Type, Simplified Freezing System

DH.WUF00011	Ultra Low Temp. Freezer, Chest, WUF-11, 136 Lit., -86°C
DH.WUF00021	, Chest, WUF-21, 273 Lit., -86°C
DH.WUF00031	, Chest, WUF-31, 314 Lit., -86°C
DH.WUF00041	, Chest, WUF-41, 375 Lit., -86°C
DH.WUF00051	, Chest, WUF-51, 438 Lit., -86°C

Optional Accessories

DH.RFC11	Rack for Chest type “WUF”, RFC11, Box 11ea(H11×D1), W140×D140×H655mm
DH.RFC7	for Chest type “WUF”, RFC7, Box 7ea(H7×D1), W140×D140×H385mm

“DAIHAN” **WiseCryo® WUF** Personal Digital Ultra-Low Temperature Freezer, Upright Type **NEW**
 Simplified Freezing System, Non-Freon Refrigerants, 25-/82-Lit., -90 °C, “PL insurance”



WUF - 80



WUF - 25



Personal **SFS™** Simplified Freezing System

● ● ● Applications & Features

- Personal type Compact Ultra Low Temperature Freezer
- **Simplified Freezing System** can down to -90 °C : can realize robust and long life time.
- Easy Monitoring and Control - Eye level Controller
- CFC-free Refrigerants are used
- Use of Block Condenser removes filter and causes of related failure
- Filter-free Mechanism lowers heat generated by the compressor
- Easy Maintenance and Improved Performance
- Vacuum Insulator and Inner Doors ensure defrosting around outer door.
- Built in Standard Warning and Alarm Functions
- RS232 Communication Link and a Remote Control Software is supported
- PL (Product Liability) Insurance

● ● ● Specification

Model		WUF-25	WUF-80
Dimension (w×d×h)	Internal (mm)	200×400×300	360×410×500
	External (mm)	415×727×838	500×620×990
Capacity		25 Lit.	82 Lit.
Capacity of Rack(Max.)		N/A, total 10~15box	12Places, 4ea, total 48box
Temp. Range		-90 °C (when external temperature is 30 °C and 70% humidity)	
Controller		Digital PID Controller (Alarm Warning) with Back Light LCD	
Compressor		Hermetic Type	
Condenser		Wire pipes condenser	
Refrigerant		HFC (CFC Free Refrigerant System)	
Material	Internal	Stainless Steel	
	External	Steel Plate with Powder Coating	
Weight (kg)		60	
Power Supply*		AC 220V 50/60Hz 1-Phase, 10A	
PL insurance			

● ● ● Ordering Information

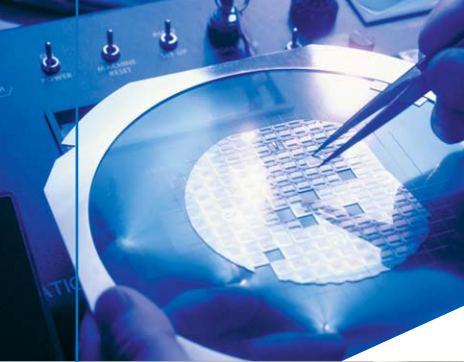
Upright Type, Simplified Freezing System

- DH.WUF0032 Personal Ultra Low Temp. Freezer, WUF-25, 25 Lit., -90 °C
 DH.WUF0075 Personal Ultra Low Temp. Freezer, WUF-80, 82 Lit., -90 °C

Optional Accessories

- DH.RFU8 Rack for “WUF-80”, RFU8, Box 12ea(H4×D3), W140×D430×H220mm
 DH.TRM10C Temperature Recorder, TRM10C
 DH.LCO2B LCO₂ Back up System, LCO2B
 DH.RWAS Remote Wire/Wireless Alarm System, RWAS

“DAIHAN” WiseCryo® WUF Ultra-Low Temperature Freezer Accessories



RFC11, Box 11ea(H11×D1) Rack



RFU3040, Box 15ea(H5×D3) Rack



RFU50, Box 20ea(H5×D4) Rack

● ● ● Rack for “WUF Ultra-Low Temperature Freezer Ordering Information

Optional Accessories

DH.RFC11	Rack for Chest type “WUF”, RFC11, Box 11ea(H11×D1), W140×D140×H655(mm)
DH.RFU3040	Rack for “WUF-(D)300/400”, RFU3040, Box 15ea(H5×D3), W140×D430×H290mm
DH.RFU50	Rack for “WUF-(D)500/700”, RFU50, Box 20ea(H5×D4), W140×D570×H290mm



LCO2B, LCO: Back Up



TRM10C, Temp. Recorder



RWAS, Remote Alarm System

● ● ● Ordering Information

Optional Accessories

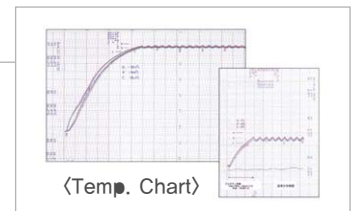
DH.LCO2B	LCO: Back Up System, LCO2B
DH.TRM10C	Temperature Recorder, TRM10C
DH.RWAS	Remote Wire/Wireless Alarm System, RWAS



• Validation(IQ&OQ) Service

Providing IQ / OQ Documentation Service

- Installation Qualification & Operation Qualification
- Operation of High-Performance Validation Instrument
- Test and Documentation for Accuracy and Uniformity



• Remote Temperature Control System

• Insured for PL (Product Liability)

- Insured Products: All product lines
- Insured Amount : Personnel USD100K + Article USD100K

DAI HAN Worldwide Distributors

The Representatives of DAIHAN Scientific

Plase check our website “www.DAIHAN-Sci.com or [ALL forLAB.com](http://ALLforLAB.com)”

DAI HAN Factory !!



DAIHAN Scientific Co., Ltd. established a new factory for manufacturing of **Wisd.2 Lab Instruments** on 16th March, 2006. DAIHAN Namyangju Factory which consists of three buildings built on 1,650 square meters includes steel sheet processing plant, assembly plants, QC labs and operation offices. All the processes of design, development, production, QC and after services for all **Wisd.2 brand** products are performed at this factory, and individual process is controlled by **ISO 9001:2000** Quality Management System certified.

Especially, its own steel sheet processing plant enables the company to realize cost-down and prompt development of new products. The plant is equipped by brand-new NCT punching machine (TRUMAC 2020R by Trumpf/Germany), NC bending machines (RG-80 by AMADA/Japan), cutting machines, press machines, various kind of welding tools and high-end CAD/CAM system.

And, we offer **IQ(Installation Qualification)** and **OQ(Operation Qualification)** documentation service based on customer's request by the operation of expertised engineers and high-performance validation instruments.

Wisd.2 Item Group

- WiseBath®** Water Baths, Extraction Baths, High-temp. Baths, Shaking Water Baths and Viscosity Baths
- WiseCircu®** Circulation Water Baths, High-temp Bath Circulators, Refrigerated Bath Circulators and Cold Trap Baths
- WiseClave®** Autoclaves (Steam Sterilizers)
- WiseClean®** Ultrasonic Cleaners
- WiseCryo®** Freezers & Ultra Low Temperature Freezers
- WiseCube®** Incubators, Cold Lab Chambers, Growth Chambers and Temp./Humidity Chambers
- WiseDoc®** Gel Documentation System
- WiseMix®** Mills, Mixers, Rockers, Rotators and Vortex Mixer
- WiseShake®** Shakers
- WiseSpin®** Centrifuges
- WiseStir®** Magnetic Stirrers, Overhead Stirrers and Jar Testers
- WiseTherm®** Furnaces, Heating Mantles, Hotplates and Thermo Blocks
- WiseTis®** Homogenizers
- WiseUv®** Transilluminators
- WiseVen®** Ovens





www.DAIHAN-Sci.com or ALLforLAB.com

Innovative Technology of Ultra-Low Temperature Freezer

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