

# New Generation of Hi-Efficiency Freezing Systems **UniFreez™** and **DuoFreez™**



## DuoFreez™

-95°C ~ -65°C

SmartLab™ Controller



WiRe™  
Controlled using a  
phone / tablet



**4 Door** **5 Door**

308 L 308 L

393 L 393 L

503 L 503 L

714 L 714 L



## UniFreez™

-86°C ~ -65°C

SmartLab™ Controller



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**4 Door** **5 Door**

308 L 308 L

393 L 393 L

503 L 503 L

714 L 714 L



## UniFreez™

-86°C ~ -65°C

SmartLab™ Controller



WiRe™  
Controlled using a  
phone / tablet

80 L



## UniFreez™

-86°C ~ -65°C

25 L

# UniFreez™ & UniFreez™

## Ultra-Low Temp. Freezers

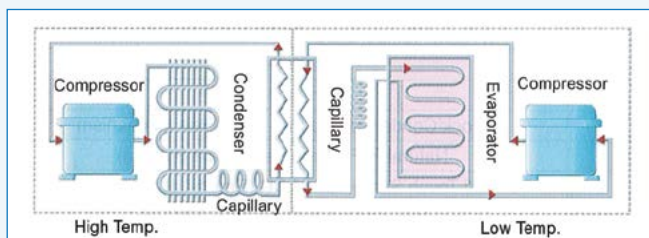
### Innovation of Freezing System

#### DAIHAN UniFreez™ System (Simplified Hi-Efficiency Freezing System)

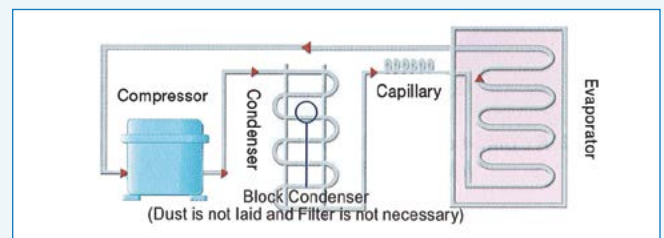
Most Ultra-Low Temperature Freezers have two compressors cooperating with each other to drop internal temperature down to  $-86^{\circ}\text{C}$  using complicated freezing mechanisms (as shown below).

The new DAIHAN UniFreez™ system uses single compressor only. Even though, a single set of a compressor, a capillary tube, a condenser and an evaporator is incorporated, it ensures the temperature down to  $-86^{\circ}\text{C}$  by an advanced control technology of the compressor and the process of specially mixed refrigerants. UniFreez™ overcomes the technical complexity of a typical cascaded double compressor system by simplifying the freezing mechanism and electricity; as a result minimizes failure of operation, noise and power consumption.

### Simplified Hi-Efficiency Freezing System Mechanism : Easy Maintenance



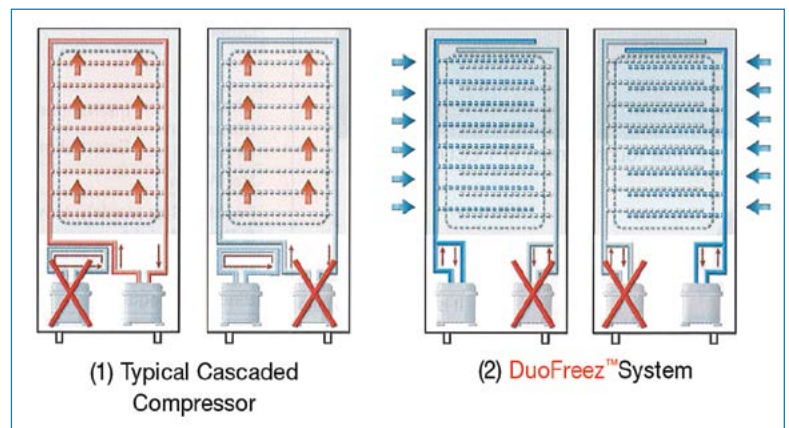
Typical cascaded compressor system  
Two freezing cycles contribute, complex mechanism



DAIHAN UniFreez™ System  
Efficient single freezing cycle

### DuoFreez™ Doubled Security and Robustness

DAIHAN freezers offer an extraordinary high-stability system powered by two UniFreez™ Systems operating independently. Normally, both of the two compressors are running, dropping the inside storage chamber temperature down to  $-95^{\circ}\text{C}$ . Even if one UniFreez™ System fails in operation by an unexpected problem, the other UniFreez™ System continues working maintaining ultra-low temperature down to  $-80^{\circ}\text{C}$ . It means one UniFreez™ System works as a 'backup' of the other UniFreez™ System. This innovative mechanism ensures doubled stability, robustness and fault tolerance, which are the most important features of the ULT freezers.



(1) Typical Cascaded Compressor

(2) DuoFreez™ System

The lowest temperature of  $-95^{\circ}\text{C}$  is ensured by DuoFreez™ 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 of the two UniFreez™ systems fails to run, the other one is still running properly = Minimum  $-80^{\circ}\text{C}$ .



## Smart Control & Connectivity

### Introducing DAIHAN Smart-Lab™ System

DAIHAN's Freezers offer superior control and connectivity thanks to the integrated Smart Controller and mobile app **WiRe™** technologies. The **Smart-Lab System** DAIHAN **WiRe™** is the world first laboratory IoT - Internet of Things - system aimed to improve current inadequate laboratory equipment supervision with smart remote controlling and monitoring, users are now able to set up **Smart-Lab™** laboratory equipment from anywhere there is internet access.



#### SmartLab™ Controller

Full-touch Screen Controller 7-inch Android System Based

The DAIHAN **Smart-Lab™** Controller is embedded in all **Smart-Lab™** equipment providing useful functions such as Storage Management, Data Recording, Self-diagnostic and others. These functions are unique and innovative in modern laboratory equipment. The controller can be connected to a smart phone or tablet through Wi-Fi, scientists are able to monitor their laboratory equipment at any time and from anywhere.



#### • Storage Management

The controller allows users to record and name sample locations for each shelf matching up with the freezer racking.

Storage management is a convenient feature that reduces the frequency and duration of the doors being opened. (Feature available on Smart ULT Freezers only).

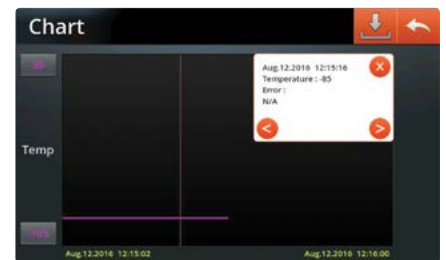


#### • Storage Settings

Settings are customized based on racks configuration. For a list of compatible racks please refer to the optional racks page. Convenient data export into a excel file via USB is also possible.

#### • User Registration Management

A single unit can be remote controlled and monitored by a system administrator, and also, it can be monitored by multiple users. System allows multiple users registration through a simple set up.



#### • Temperature Chart

Graph settings are customizable. Temperature measurement data is stored in the internal memory by intervals of 10 seconds. Memory capacity is up to 6 months.

#### • Data Export USB

Data can be backed up/exported via USB. Program updates are possible through USB port.



### Remote Control System **WiRe™** App



- Anytime, anywhere and... anyhow, users can monitor and control **Smart-Lab™** laboratory equipment using a smart phone/tablet without restraint of time or place.
- App download is free at Android and iOS App Stores.





### Features

- \* DuoFreez™ Smart Digital Ultra Low Temperature Freezer, Upright type.
- \* The DuoFreez™ System freezes down to -95°C. Optional High-Stability System: If one of UniFreez™ System fails while operation, the other UniFreez™ System still works while maintaining temperature down to -80°C.
- \* Self diagnostic function
- \* Filter-free mechanism lowers heat generated by the compressor
- \* High-quality insulation panel and inner doors ensure defrosting around outer surface
- \* Automatic vacuum breaker, easy to re-open the door
- \* Robust door handle design
- \* External temperature sensor ready (hole)
- \* Eco Mode function for low power consumption
- \* Ergonomic 7" Full Touch Screen TFT LCD - Smart-Lab™ Controller
- \* WiRe™ App Service
- \* Controller placed at the right height for easy monitoring
- \* Wi-Fi Internet connectivity. RS232 Communication link
- \* Easy maintenance
- \* Delivered with certificate & traceability



DuoFreez™ U300

### Controlled by Smart-Phone



WiRe™ App Service allows monitoring and control SmartLab™ units through a smart phone or table anytime anywhere.

### SmartLab™ Controller



The Smart-Lab™ 7" Full Touch Screen Display allows for easy parameter setting and visual monitoring.

Model		DuoFreez U300 4 & 5 Door	DuoFreez U400 4 & 5 Door	DuoFreez U500 4 & 5 Door	DuoFreez U700 4 & 5 Door
Part Number	4 Door	DH.SWUF01300	DH.SWUF01400	DH.SWUF01500	DH.SWUF01700
	5 Door	DH.SWUF01350	DH.SWUF01450	DH.SWUF01550	DH.SWUF01750
Capacity		308 L	393 L	503 L	714 L
Freezing System		DuoFreez™ System			
Temp	Range	-95°C ~ -65°C			-90°C ~ -65°C
	Sensor	at Room Temperature of 30°C and Humidity of 70%			
Compressor		Hermetic Type			
Condenser Type		Block Condenser, No Pin, Filter Free Mechanism			
Refrigerant		Natural (CFC Free Refrigerant System)			
Controller & Display		7" Full Touch Screen TFT LCD - SmartLab™ Controller			
Shelves		3ea (4 Door), 4ea (5 Door)			
Max. Qty. of Racks	4 Door	12 pcs of 15 (5x3) Placed Rack (RFU4234)	16 pcs of 15 (5x3) Placed Rack (RFU4234)	16 pcs of 20 (5x4) Placed Rack (RFU4257)	24 pcs of 20 (5x4) Placed Rack (RFU4257)
	5 Door	15 pcs of 12 (4x3) Placed Rack (RFU5234)	20 pcs of 12 (4x3) Placed Rack (RFU5234)	20 pcs of 16 (4x4) Placed Rack (RFU5257)	30 pcs of 16 (4x4) Placed Rack (RFU5257)
Material	Internal	Stainless-Steel (#304)			
	External	Powder Coated Steel Plate			
	Inner door	Powder Coated Stainless-Steel (#304) / 312mm (4Door), 252 (5Door) Height			
Chamber Dim. (W x D x H) mm	Internal	470 x 500 x 1310	600 x 500 x 1310	600 x 640 x 1310	880 x 620 x 1310
	External	710 x 750 x 1900	840 x 750 x 1900	840 x 890 x 1900	1120 x 870 x 1900
Net Weight		220 kg	260 kg	300 kg	320 kg
Packaging Size (W x D x H)		110 x 110 x 222 cm	116 x 116 x 222 cm	116 x 124 x 222 cm	140 x 140 x 221 cm
Gross Weight		300 kg	352 kg	392 kg	442 kg
Power Consumption	Dual Mode	398 w/h	474 w/h	507 w/h	596 w/h
	Eco. Mode	352 w/h	373 w/h	458 w/h	503 w/h
Electrical Requirements		1 Phase, AC 230 V, 50 / 60 Hz			





UniFreez™ U300

24  
Months  
Warranty



Control the unit remotely using the WiRe™ App Service from anywhere at anytime.

### SmartLab™ Controller



The Smart-Lab™ 7" Full Touch Screen Display allows for easy parameter setting and visual monitoring.

### Features

- \* UniFreez™ Smart Digital Ultra Low Temperature Freezer, Upright type.
- \* The UniFreeze™ System freezes down to -86°C
- \* Self diagnostic function
- \* Automatic temperature data-recording
- \* Filter-free mechanism lowers heat generated by the compressor
- \* High-quality insulation panel and inner doors ensure defrosting around outer surface
- \* Automatic vacuum breaker, easy to re-open the door
- \* Robust door handle design
- \* External temperature sensor ready (hole)
- \* CFC-free refrigerants are used
- \* Ergonomic 7" Full Touch Screen TFT LCD - Smart-Lab™ Controller
- \* WiRe™ App Service
- \* Controller placed at the right height for easy monitoring
- \* Wi-Fi Internet connectivity. R232 Communication Link.
- \* Easy maintenance
- \* Built-in standard warning and alarm functions
- \* Delivered with certificate & traceability

Model		UniFreez U300 4 & 5 Door	UniFreez U400 4 & 5 Door	UniFreez U500 4 & 5 Door	UniFreez U700 4 & 5 Door
Part Number	4 Door	DH.SWUF00300	DH.SWUF00400	DH.SWUF00500	DH.SWUF00700
	5 Door	DH.SWUF00350	DH.SWUF00450	DH.SWUF00550	DH.SWUF00750
Capacity		308 L	393 L	503 L	714 L
Temp	Range	-86°C ~ -65°C			-80°C ~ -65°C
	Sensor	at Room Temperature of 30°C and Humidity of 70%			
Compressor		Hermetic Type			
Condenser Type		Block Condenser, No Pin, Filter Free Mechanism			
Refrigerant		Natural (CFC Free Refrigerant System)			
Controller & Display		7" Full Touch Screen TFT LCD - SmartLab™ Controller			
Shelves		3ea (4 Door), 4ea (5 Door)			
Max. Qty. of Racks	4 Door	12 pcs of 15 (5x3) Placed Rack (RFU4234)	16 pcs of 15 (5x3) Placed Rack (RFU4234)	16 pcs of 20 (5x4) Placed Rack (RFU4257)	24 pcs of 20 (5x4) Placed Rack (RFU4257)
	5 Door	15 pcs of 12 (4x3) Placed Rack (RFU5234)	20 pcs of 12 (4x3) Placed Rack (RFU5234)	20 pcs of 16 (4x4) Placed Rack (RFU5257)	30 pcs of 16 (4x4) Placed Rack (RFU5257)
Material	Internal	Stainless-Steel (#304)			
	External	Powder Coated Stainless-Steel Plate			
	Inner door	Powder Coated Stainless-Steel (#304) / 312mm (4Door), 252 (5Door) Height			
Chamber Dim. (W x D x H) mm	Internal	470 x 500 x 1310	600 x 500 x 1310	600 x 640 x 1310	880 x 620 x 1310
	External	710 x 750 x 1900	840 x 750 x 1900	840 x 890 x 1900	1120 x 870 x 1900
Net Weight		180 kg	210 kg	240 kg	320 kg
Packaging Size (W x D x H)		110 x 110 x 222	116 x 116 x 222 cm	116 x 124 x 222 cm	140 x 140 x 221 cm
Gross Weight		275 kg	296 kg	327 kg	442 kg
Power Consumption		352 w/h	373 w/h	458 w/h	503 w/h
Electrical Requirements		1 Phase, AC 230V, 50 / 60 Hz			





UniFreez™ U80

### Features

- \* UniFreez™ Personal Digital Ultra Low Temperature Freezer, Compact upright type.
- \* UniFreez™ System freezes down to -86°C
- \* Self diagnostic function\* "U80" Only
- \* Automatic temperature data-recording\* "U80" Only
- \* Storage management function\* "U80" Only
- \* Filter-free mechanism lowers heat generated by the compressor
- \* High-quality insulation panel and inner doors ensure defrosting around outer surface
- \* External temperature sensor ready (hole)
- \* CFC-free refrigerants are used
- \* Ergonomic 7" Full Touch Screen TFT LCD\* "U80" Only
- \* Smart-Lab™ Controller\* "U80" Only
- \* WiRe™ App Service\* "U80" Only
- \* Wi-Fi Internet connectivity\* "U80" Only. RS232 Communication link.
- \* Easy maintenance
- \* Built-in standard warning and alarm functions
- \* Delivered with certificate & traceability

24  
Months  
Warranty



UniFreez™ U25

Model	UniFreez U25	UniFreez U80
Part Number	DH.WUF0032	DH.SWUF0075
Capacity	25 L	82 L
Temp	Range	-86°C ~ -65°C
	Sensor	at Room Temperature of 30°C and Humidity of 70%
		PT100 Sensor
Compressor		Hermetic Type
Condenser Type		Block Condenser, No Pin, Filter Free Mechanism
Refrigerant		Natural (CFC Free Refrigerant System)
Controller	Digital Feedback Controller	7" Full Touch Screen TFT LCD
Shelves	None	Included 1 Stainless-Steel Shelf
Max. Qty. of Racks	None, Only 10-15 Boxes are applicable	4pcs of 12 (4x3) Placed Rack (RFU5234)
Material	Internal	Stainless-Steel (#304)
	External	Powder Coated Steel Plate
	Inner door	Powder Coated Stainless-Steel (#304)
Inner Door Height	-	252mm
Chamber Dim. (W x D x H) mm	Internal	200 x 420 x 300
	External	390 x 627 x 785
Net Weight	52 kg	60 kg
Packaging Size (W x D x H)	880 x 860 x 1300 mm	960 x 760 x 1350 mm
Gross Weight	69 kg	102 kg
Power Consumption	321 w/h	
Electrical Requirements	1 Phase, AC 230V, 50 / 60 Hz	



WiRe™

WiRe™ App Service allows monitoring and control SmartLab™ units through a smart phone or table anytime anywhere. (\*U80 Model Only)

SmartLab™ Controller



The Smart-Lab™ 7" Full Touch Screen Display allows for easy parameter setting and visual monitoring. (\*U80 Model Only)



# UniFreez™ & DuoFreez™ Optional Racks

## Optional Freezer Racks, Sliding Drawer-type for 0.5~2mL, 3~4mL, 5mL Vial Boxes

\* Stainless Steel (#304), \* without Boxes



Sliding drawer type, 15 Places  
RFU4257SD

### For 2 Door-type U80

Part Number	Rack Size (WxDxH) mm	Freezer box & No. of boxes	Freezer Capacity No. of Racks
DH.RFU5234SD	140 x 420 x 232	0.5 ~ 2mL, 12 (4 x 3)	U80 (4ea)
DH.RFU5434SD	140 x 420 x 171	3 ~ 4mL, 6 (2 x 3)	
DH.RFU5534SD	140 x 420 x 211	5mL, 6 (2 x 3)	

### For 4 Door-type U300 / U400 / U500 / U700

Part Number	Rack Size (WxDxH) mm	Freezer box & No. of boxes	Freezer Capacity No. of Racks
DH.RFU4234SD	140 x 420 x 290	0.5 ~ 2mL, 15 (5 x 3)	U300 (12ea) U400 (16ea)
DH.RFU4434SD	140 x 420 x 256	3 ~ 4mL, 9 (3 x 3)	
DH.RFU4534SD	140 x 420 x 311	5mL, 9 (3 x 3)	
DH.RFU4257SD	140 x 560 x 290	0.5 ~ 2mL, 20 (5 x 4)	U500 (16ea) U700 (24ea)
DH.RFU4457SD	140 x 560 x 256	3 ~ 4mL, 12 (3 x 4)	
DH.RFU4557SD	140 x 560 x 311	5mL, 12 (3 x 4)	

### For 5 Door-type U300 / U400 / U500 / U700

Part Number	Rack Size (WxDxH) mm	Freezer box & No. of boxes	Freezer Capacity No. of Racks
DH.RFU5234SD	140 x 420 x 232	0.5 ~ 2mL, 12 (4 x 3)	U300 (15ea) U400 (20ea)
DH.RFU5434SD	140 x 420 x 171	3 ~ 4mL, 6 (2 x 3)	
DH.RFU5534SD	140 x 420 x 211	5mL, 6 (2 x 3)	
DH.RFU5257SD	140 x 560 x 232	0.5 ~ 2mL, 16 (4 x 4)	U500 (20ea) U700 (30ea)
DH.RFU5457SD	140 x 560 x 171	3 ~ 4mL, 8 (2 x 4)	
DH.RFU5557SD	140 x 560 x 211	5mL, 8 (2 x 4)	

## Optional Freezer Racks, Side Access-type for 0.5~2mL, 3~4mL, 5mL Vial Boxes

\* Stainless Steel (#304), \* without Boxes



Side access type, 20 Places  
RFU4257SA

### For 2 Door-type U80

Part Number	Rack Size (WxDxH) mm	Freezer box & No. of boxes	Freezer Capacity No. of Racks
DH.RFU5234SA	140 x 420 x 232	0.5 ~ 2mL, 12 (4 x 3)	U80 (4ea)
DH.RFU5434SA	140 x 420 x 171	3 ~ 4mL, 6 (2 x 3)	
DH.RFU5534SA	140 x 420 x 211	5mL, 6 (2 x 3)	

### For 4 Door-type U300 / U400 / U500 / U700

Part Number	Rack Size (WxDxH) mm	Freezer box & No. of boxes	Freezer Capacity No. of Racks
DH.RFU4234SA	140 x 420 x 290	0.5 ~ 2mL, 15 (5 x 3)	U300 (12ea) U400 (16ea)
DH.RFU4434SA	140 x 420 x 256	3 ~ 4mL, 9 (3 x 3)	
DH.RFU4534SA	140 x 420 x 311	5mL, 9 (3 x 3)	
DH.RFU4257SA	140 x 560 x 290	0.5 ~ 2mL, 20 (5 x 4)	U500 (16ea) U700 (24ea)
DH.RFU4457SA	140 x 560 x 256	3 ~ 4mL, 12 (3 x 4)	
DH.RFU4557SA	140 x 560 x 311	5mL, 12 (3 x 4)	

### For 5 Door-type U300 / U400 / U500 / U700


Part Number	Rack Size (WxDxH) mm	Freezer box & No. of boxes	Freezer Capacity No. of Racks
DH.RFU5234SA	140 x 420 x 232	0.5 ~ 2mL, 12 (4 x 3)	U300 (15ea) U400 (20ea)
DH.RFU5434SA	140 x 420 x 171	3 ~ 4mL, 6 (2 x 3)	
DH.RFU5534SA	140 x 420 x 211	5mL, 6 (2 x 3)	
DH.RFU5257SA	140 x 560 x 232	0.5 ~ 2mL, 16 (4 x 4)	U500 (20ea) U700 (30ea)
DH.RFU5457SA	140 x 560 x 171	3 ~ 4mL, 8 (2 x 4)	
DH.RFU5557SA	140 x 560 x 211	5mL, 8 (2 x 4)	



# UniFreez™ & DuoFreez™ Accessories

## Optional Freezer Boxes / UniFreez™ / DuoFreez™

for 0.5~2mL Cryovials/Microtubes, 81 & 100 hole White Boxes, h52mm, 0.5mL: Screwcap Microtubes

 <b>SL.Box9001</b>	81-hole Box,	White,	h52mm,	Cell Ø15mm
<b>SL.Box9002</b>	100-hole Box,	White,	h52mm,	Cell Ø12.5mm



SL.Box9001

for 3mL Cryovials, 81 & 100 hole White Boxes, h77mm, fits selected 4mL Cryovials

<b>SL.Box9003</b>	81-hole Box,	White,	h77mm,	Cell Ø15mm
<b>SL.Box9004</b>	100-hole Box,	White,	h77mm,	Cell Ø12.5mm




SL.Box9005 - Assorted Colours

for 5mL Cryovials, 64 & 81 hole White Boxes, h98mm

<b>SL.Box9007</b>	64-hole Box,	White,	h98mm,	Cell Ø16mm
<b>SL.Box9008</b>	81-hole Box,	White,	h98mm,	Cell Ø15mm

for 0.5~2mL Cryovials & Microtubes, 5 Color Assorted Box-Set, 81 & 100 hole, 5 Colors : Blue / Green / Pink / Yellow / White - Assorted

 <b>SL.Box9005</b>	81-hole/5 color Box set,	h52mm,	Cell Ø15mm
<b>SL.Box9006</b>	100-hole/5 color Box set,	h52mm,	Cell Ø12.5mm



SL.Box9014 Assorted Colours

 for 0.5~2mL Cryovials & Microtubes, IDColor™ 81 holes Cell Ø15mm, 5 Color Cardboard Freezer Box-set

<b>SL.Box9014.Y</b>	Freezer Box, 81-hole, for 0.5~2.0mL, Yellow
<b>SL.Box9014.O</b>	Freezer Box, 81-hole, for 0.5~2.0mL, Orange
<b>SL.Box9014.G</b>	Freezer Box, 81-hole, for 0.5~2.0mL, Green
<b>SL.Box9014.B</b>	Freezer Box, 81-hole, for 0.5~2.0mL, Blue
<b>SL.Box9014.W</b>	Freezer Box, 81-hole, for 0.5~2.0mL, White



C.11001

 for 1.5/2.0mL Cryovials/Microtube, 81-Holes, Ø15mm, Hard Board Storage Boxes with Hard Board / PP Divider

<b>C11.001</b>	Hard Board Box, with Hard Board Divider, 81 Hole, 133 x 133 x h52 mm
<b>C11.002</b>	Hard Board Box, with PolyPropylene Divider, 81 Hole, 133 X 133 X h52 mm



C.11002

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