

BICELL (BIO FREEZING VESSEL)

Cryopreservation vessel for animal cells

- Cells can be preserved by freezing without programmable freezers.
- BICELL offers high viability and retrieval of cells.
- BICELL involves no operation expense.
- Usage of BICELL is easy. Keep BICELL at 4°C. Prepare specimen with your ordinary procedure for cryopreservation of cells. Insert sealed ampuls or serum tubes into BICELL. Place BICELL into a -80°C freezer. A freezing process is completed within approx. 3 hours.



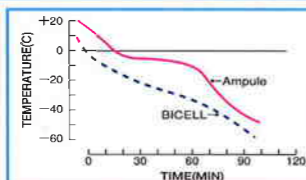
BICELL

Specifications

Heat resistant range	-80°C~+40°C
External dimensions	φ88x H109 mm (Inclusive of lid)
Internal dimensions	φ50×H69mm
Weight	Approx. 200g
Freezing buffer	Approx. 100 ml
Capacity	Serum tube (1.8~2ml): Approx. 7 to 8 Glass ampuls (1ml): Approx. 9 to 10

TEST DATA

Medium : EMEM + FCS10% + DSO5%
 Specimen Tube : Glass ampule (1ml)
 (Equivalent to 0.5cc plastic tube)
 Specimen : VERO (African green Monkey)
 Cell Density : 5×10^6 /ml
 (Sealed Glass Ampules placed into BICELL were stored in -80°C freezer.)



DATA OF BICELL

ASCITES TUMOR CELLS

Name of cells	Kind of animal	Years of preservation	Name of viable cells (%)		
			Before freezing	After thawing	Survival rate
M-1498	Mouse C57BL	0.5	99	95	96
MM-102	Mouse	1.5	90	83	92
	C3H/He	2.5	90	72	80
FM3A	Mouse	2.0	94	90	96
	C3H/He	5.0	97	93	96
S-37	Mouse	3.0	91	71	78
	JCR/JCL	5.0	88	79	90
Yoshida-Sarcoma	Rat	3.0	91	31	34
	Donryu	4.0	91	54	59

INCUBATION CELLS

Name of cells	Years of preservation	Survival rate (%)
HeLa-S ₃	3	95.5
Vero	10	90
BHK21-C1 ₁₃	12	65
*Primary culture of Human fibroblast	12	75
MDCK	7	85
FM ₃ A	12	93
*Primary culture of chick embryo cells	13	55

NIHON FREEZER

GENERAL CATALOGUE



NIHON FREEZER CO., LTD.

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NIHON FREEZER CO., LTD.

URL : <http://www.nihon-freezer.co.jp>

ULTRA-LOW TEMPERATURE FREEZER

-85/-95°C

Cooling performance and environmental adaptability have been improved totally with Nihon Freezer's new technology. Easy maintenance is ensured.

- Single compressor cooling system.
- No filters and no need of condenser cleaning.
- High temperature alarm, power failure alarm, and voltage free contact for remote alarm are standard.
- Double cooling system with high reliability.

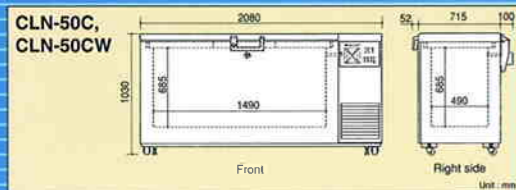
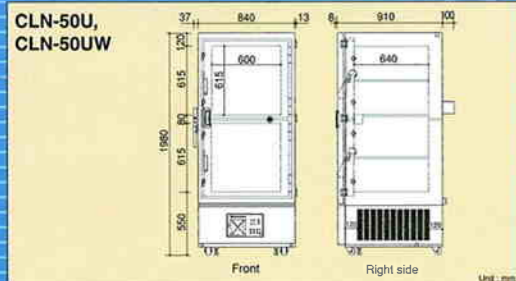


Specifications (Upright)

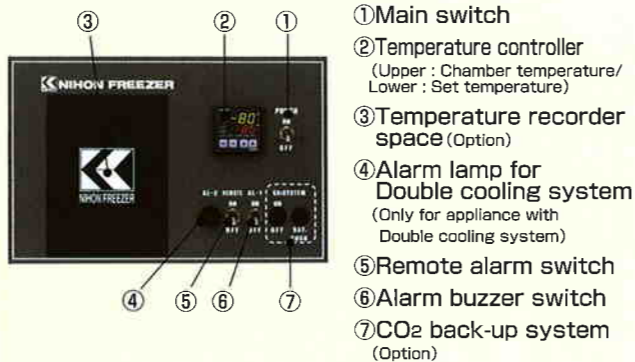
Model	CLN-30U	CLN-30UW	CLN-50U	CLN-50UW	CLN-70UW
Cooling system	Single	Double	Single	Double	Double
Temperature range	-70°C~-80°C (MAX-85°C)	-75°C~-85°C (MAX-90°C)	-70°C~-80°C (MAX-85°C)	-75°C~-85°C (MAX-90°C)	-70°C~-80°C (MAX-85°C)
Capacity	Approx.308 ℓ		Approx.503 ℓ		Approx.705 ℓ
External dimensions	W(710+50)×D(770+108)×H1980mm		W(840+50)×D(910+108)×H1980mm		W(1055+50)×D(930+108)×H1980mm
Internal dimensions	W470×D500×H1310mm		W600×D640×H1310mm		W815×D660×H1310mm
Material	Exterior: Electro-galvanized steel / Interior: Stainless steel				
Weight	Approx.170Kg	Approx.210Kg	Approx.210Kg	Approx.280Kg	Approx.290Kg
Refrigerant	Specially mixed refrigerant				
Alarm	High temperature alarm and power failure alarm				
Accessories	Stainless steel shelf: 3, Key: 2 types (2 each), Caster: 4, Adjustable bolt: 2, Access port: 1 (φ20mm)				

Specifications (Chest)

Model	CLN-35C	CLN-35CW	CLN-50C	CLN-50CW	CLN-70C
Cooling system	Single	Double	Single	Double	Single
Temperature range	-70°C~-80°C (MAX-85°C)	-75°C~-85°C (MAX-90°C)	-70°C~-80°C (MAX-85°C)	-75°C~-85°C (MAX-90°C)	-70°C~-80°C (MAX-85°C)
Capacity	Approx.349 ℓ		Approx.500 ℓ		Approx.701 ℓ
External dimensions	W1630×D(715+152)×H1030mm		W2080×D(715+152)×H1030mm		W2080×D(865+152)×H1075mm
Internal dimensions	W1040×D490×H685mm		W1490×D490×H685mm		W1490×D640×H735mm
Material	Exterior: Electro-galvanized steel / Interior: Stainless steel				
Weight	Approx.180Kg	Approx.230Kg	Approx.200Kg	Approx.260Kg	Approx.220Kg
Refrigerant	Specially mixed refrigerant				
Alarm	High temperature alarm and power failure alarm				
Accessories	Key: 2 types (2 each), Caster: 4, Adjustable bolt: 2, Access port: 1 (φ20mm)				



Control Panel (Upright and Chest)



ULTRA-LOW TEMPERATURE FREEZER

New Cooling System

Single compressor cooling system provides excellent cooling performance.

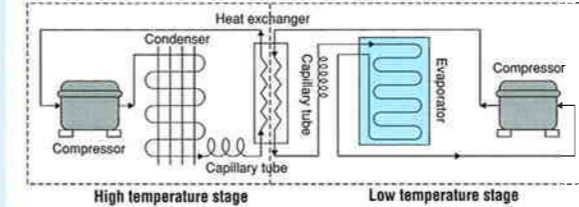
Single compressor cooling system

A traditional cascade cooling system^{※1}, which requires 2 compressors and 2 cooling cycles, has been used for ultra-low temperature freezers. Nihon Freezer, however, has succeeded in developing its own cooling system^{※2}, which achieves lower temperature than -80°C only with one compressor and the specially mixed refrigerant. CLN series

has adopted this new technology. Since Single compressor cooling system is simple, it is possible to simplify the electric circuit, which leads to a low trouble rate. It also contributes to conservation of energy. About 10% lower power consumption is accomplished, compared with conventional ultra-low temperature freezers.

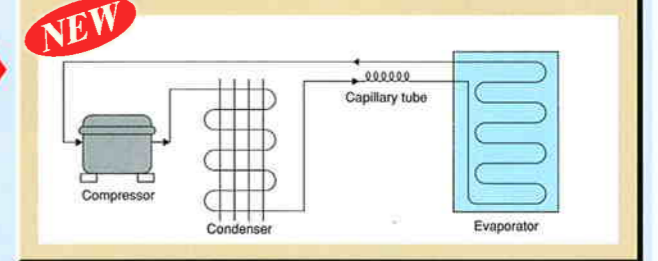
※1 Cascade cooling system (Traditional system)

A cascade cooling system consists of a low temperature stage and a high temperature stage. The combination of the 2 stages is only able to produce such low temperature as -80°C. If there is trouble with one of the stages, low temperature can not be maintained. Moreover, the structure of cascade cooling system is rather complicated and the system requires a number of components, which leads to a high trouble rate.



※2 Single compressor cooling system (New cooling system)

Lower temperature than -80°C is reached only with one cooling cycle with one compressor. Basically, the cooling system is the same as one of a household refrigerator. The merit of Single compressor cooling system is the simplicity.



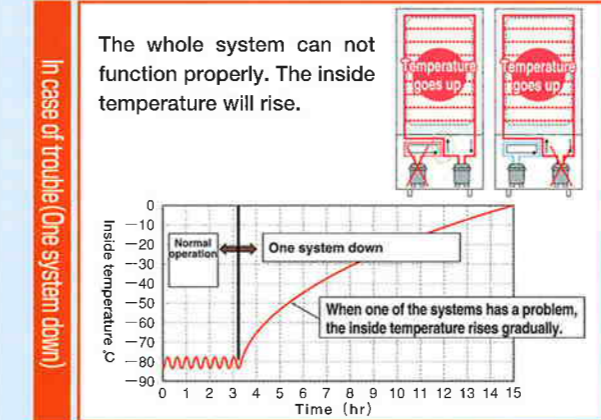
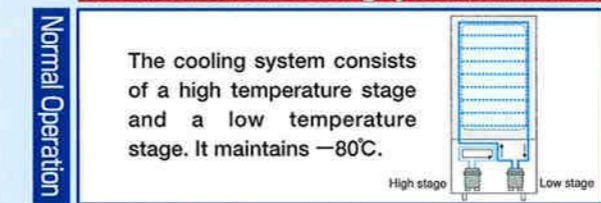
Improvement of safety and security with double cooling system

Double cooling system

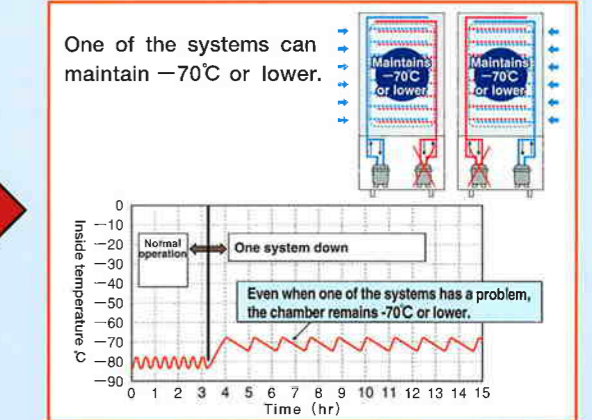
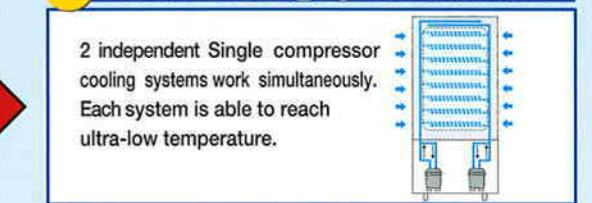
In case one of the high or low temperature stages has trouble, an ultra-low temperature freezer with a conventional cascade cooling system loses the whole cooling function. For the first time in the industry, Nihon freezer has adopted Double cooling system, which has 2 independent

Single compressor cooling systems, in an ultra-low temperature freezer. Since each Single compressor cooling system is able to achieve ultra-low temperature, even in case one of the systems has a problem, a Double cooling system freezer can maintain -70°C or lower in the chamber.

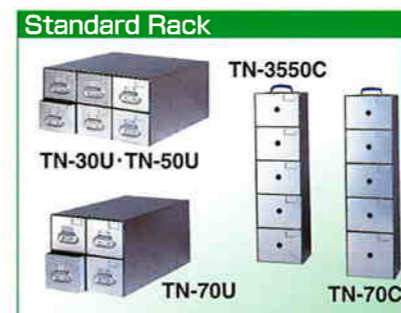
Traditional cascade cooling system (Other manufacturers)



NEW Double cooling system (Nihon Freezer)



OPTION



MYBIO CUBE (DESKTOP FREEZER)

-85°C

Ideal personal freezer for every researcher
Compact design / Dead space can be used effectively.

- Excellent cooling performance makes long term storage possible.
- No filter cleaning is required. (Easy maintenance)
- Up to 20 freeze boxes (2ml x 100 tubes) can be stored.
- Nihon Freezer's original new technology. Single compressor cooling system is used. Vacuum insulation panels allow high-density storage. (30% more space-saving, compared with conventional insulation.)

MYBIO CUBE
ULTRA-LOW TEMPERATURE



DTF-35 ※Freezer stand and freeze box racks are options. (Not included)

●Specifications

Model	DTF-35
Temperature range	-70°C~-80°C (MAX -85°C)
Capacity	Approx.35 ℓ
External dimensions	W (460+35) × D (620+40) × H680mm
Internal dimensions	W336×D356×H295mm
Material	Exterior: Electro-galvanized steel / Interior: Stainless steel
Weight	Approx.65Kg
Refrigerant	Specially mixed refrigerant
Alarm	High temperature alarm and power failure alarm
Accessories	Stainless steel shelf: 1, Key, Adjustable bolt: 2, Access port: 1 (φ20mm)

(Option)



Standard Rack Freeze Box Rack Freezer Stand (Stainless steel)

MY BIO (ULTRA-LOW TEMPERATURE FREEZER)

-80°C

One ultra-low temperature freezer for one researcher for his personal use
Compact design

- Low price, low energy consumption, and low noise have been realized with Single compressor cooling system, Nihon Freezer's original new technology.
- Space saving compact design.
- No filter cleaning is required. (Easy maintenance)



VT-78

VT-208

●Specifications

Model	VT-78	VT-208
Temperature range	-70°C~-80°C	
Capacity	Approx.70 ℓ	Approx.189 ℓ
External dimensions	W555×D555+78×H885mm	W925×D605+95×H885mm
Internal dimensions	W385×D385×H470mm	W755×D435×H650mm
Material	Exterior / interior: Baked-on acrylic resin finish steel	
Weight	Approx.45Kg	Approx.64Kg
Refrigerant	Specially mixed refrigerant	
Alarm	High temperature alarm and power failure alarm	

(Option)



Rack for VT-78
Dimensions: W180×D177×H385+30mm
Full set: 4

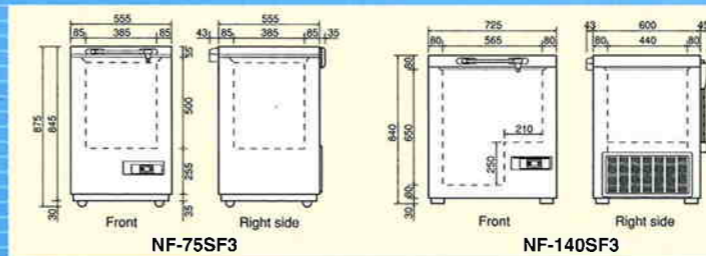
Rack for VT-208
Dimensions: W160×D200×H570+30mm
Full set: 6

FREEZE (CHEST FREEZER)

-60°C

Multipurpose freezers with excellent cooling performance

- Little loss of cool air during lid opening.
- Line-up of small to large, 4 models available.
- No filter cleaning is required. (Easy maintenance)
- Useful in various fields.



NF-75SF3

NF-140SF3

NF-75SF3

NF-140SF3

NF-400SF3



(Option)



Rack for NF-75SF3 Rack for NF-140/300/400SF3

●Specifications

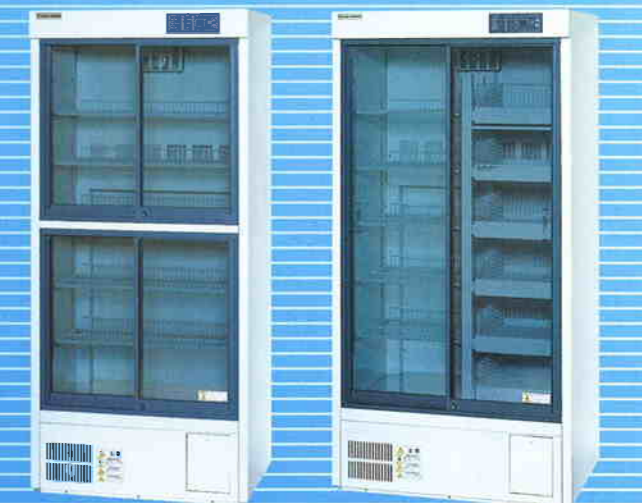
Model	NF-75SF3	NF-140SF3	NF-300SF3	NF-400SF3
Temperature range	-45°C~-60°C			
Capacity	Approx.70 ℓ	Approx.140 ℓ	Approx.300 ℓ	Approx.400 ℓ
External dimensions	W555×D555+78×H875mm	W725×D600+88×H840mm	W1260×D600+88×H840mm	W1565×D600+88×H840mm
Internal dimensions	W385×D385×H470mm	W565×D440×H648mm	W1100×D440×H648mm	W1400×D440×H648mm
Material	Exterior/interior: Baked-on acrylic resin finish steel			
Weight	Approx.43Kg	Approx.50Kg	Approx.66Kg	Approx.78Kg
Refrigerant	Specially mixed refrigerant			
Alarm	High temperature alarm			

BIO MEDICAL SHOWCASE

+2°C~+14°C

Ideal cold storage environment for medicine, vaccine, and reagent

- No filter cleaning is required. (Easy maintenance)
- Microprocessor controller enables accurate and appropriate temperature control.
- Forced air circulation provides good uniformity.
- Cycle automatic defrost with heater.
- Adjustable shelves.
- Various alarms protect your cold storage.



BMS-350F3

BMS-500F3

※Condensation on the front glass doors may be seen in hot and humid climate.

●Specifications

Model	BMS-350F3	BMS-500F3
Temperature range	+2°C~+14°C	
Capacity	Approx.350 ℓ	Approx.500 ℓ
External dimensions	W830×D511+25×H1830mm	W920×D601+25×H1830mm
Internal dimensions	W730×D310×H1435mm	W820×D400×H1435mm
Material	Exterior/Interior: Painted steel	
Door	Double-paned sliding glass door	
Shelf	Polyethylene coated shelf: 5	Polyethylene coated shelf: 6
Weight	Approx.110 Kg	Approx.135 Kg
Refrigerant	R-134a	
Alarm	High temperature alarm, low temperature alarm, door alarm, and sensor alarm	

Control panel



Temperature recorder (Option)



Model: AKM-0620



BMS-500F3



BMS-350F3

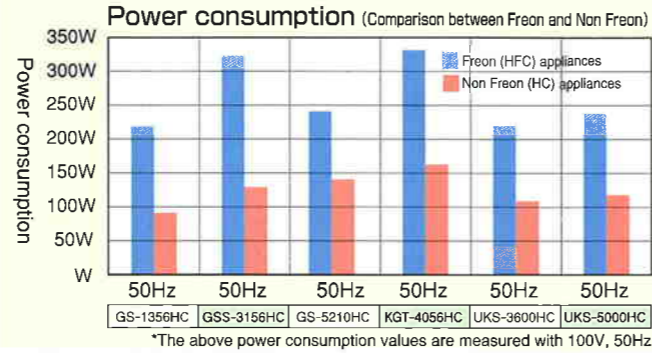
NON FREON SERIES Environment-friendly Non Freon refrigerant is used. Harmless to ozone layers and little effect on Global warming

Advantage of NON FREON refrigerant

Non Freon refrigerant, R-600a, gives no harm to ozone layers and has little effect on Global warming. Thanks to higher cooling efficiency, power consumption has been decreased remarkably, compared with common Freon appliances.

Type of refrigerant	Name	Ozone destruction coefficient	Global warming coefficient
CFC	R-12	1.0	8500
HCFC	R-22	0.055	1700
HFC	R-134a	0	1300
HC	R-600a	0	3

•Ozone destruction coefficient: Relative value when R-11 is made 1.0
 •Global warming coefficient: Relative value when CO2 is made 1



BIO FREEZER (NON FREON)

Storage in order with drawers and easy putting in and out

- Static cooling provides better preservation condition than forced-air cooling, without heater defrost and a fan. No automatic defrost and no regular temperature rise.
- Drawers keep storage in order and provide easy putting in and out. Leakage of cooled air can be also minimized with drawers during door-opening.

●Specifications

Model	GS-1356HC	GSS-3156HC	GS-5210HC
Temperature range		-14°C~-28°C	
Capacity	Approx.104 ℓ	Approx.307 ℓ	Approx.513 ℓ
External dimensions	W555XD625+26XH850mm	W660XD683+32XH1644mm	W750XD750+42XH1725mm
Drawers	4	7	14
Weight	Approx.42Kg	Approx.77Kg	Approx.99Kg
Insulation	Foamed polyurethane (Cyclopentane)		
Refrigerant	R-600a		



BIO MULTIPLE COOLER (NON FREON)

Cooler and freezer, suitable for storage of medicine and reagent

- Cooler and freezer have 2 independent cooling and control systems with 2 compressors. Designed for not affecting each other.
- Drawers in the freezer compartment keep storage in order and provide easy putting in and out. Leakage of cooled air can be also minimized with drawers during door-opening.

●Specifications

Model	KGT-4056HC
Temperature range	Cooler / +2°C ~ +11°C Freezer / -14°C ~ -28°C
Capacity	Cooler / Approx.274 ℓ Freezer / Approx.109 ℓ
External dimensions	W 600 X D 631 + 35 X H1975mm
Drawers	3 (Freezer)
Weight	Approx.91Kg
Insulation	Foamed polyurethane (Cyclopentane)
Refrigerant	R-600a



BIO MEDICAL COOLER (NON FREON)

Multi-purpose cooler Make the best of its storage space effectively.

- Compact design with thin walls allows installation in a little space.
- Shelf position is adjustable. (Pitch: 30mm) Store from large things to small things effectually.

●Specifications

Model	UKS-3600HC	UKS-5000HC
Temperature range	+2°C~+15°C	
Capacity	Approx.331 ℓ	Approx.429 ℓ
External dimensions	W602XD580+43XH1589mm	W755XD695+43XH1515mm
Weight	Approx.62Kg	Approx.78Kg
Refrigerant	R-600a	



REFRIGERATOR·FREEZER with spark-free interior

+2°C~+10°C/-15°C/+1°C~+9°C

For storage of flammable gas and/or liquid in laboratories

- The interior of the appliances is spark-free in compliance with ATEX Directive 94/9/EC zone II.
 - There are no parts, producing any electric sparks, inside. Thus, flammable materials can be stored. (Explosion-proof interior)
 - Environmental-friendly Non Freon refrigerant is used. (No ozone destruction and little effect on Global warming)
 - Small-size articles can be stored on flat glass shelves.
- *The appliances are spark-free only inside. Do not use them in hazardous areas.

●Specifications

Model No.	FKEX-1800	FKEX-5000	CT-3213
Temperature range	+2°C~+10°C	+2°C~+10°C	F: -15°C or lower / R: +1°C~+9°C
Capacity	Approx.174 ℓ	Approx.433 ℓ	F: Approx.71 ℓ / R: Approx.236 ℓ
External dimensions	W600XD600+43XH885mm	W755XD691+43XH1515mm	W597XD629+25XH1690mm
Internal dimensions	W513XD441XH734mm	W646XD516XH1338mm	F: W437XD442XH379mm R: W519XD451XH1056mm
Weight	Approx.34Kg	Approx.78Kg	Approx.70Kg
Refrigerant	R-600a		



EXPLOSION-PROOF REFRIGERATOR·FREEZER

-20°C~+10°C

For refrigerated storage of flammable materials such as organic solvents

- The appliances are explosion-proof in compliance with the explosion-proof guideline of the Technology Institution of Industrial Safety (Japan).
- The refrigeration cycle is "Pressurized Apparatus" (f) and the control circuit has "Flame-proof Enclosure" (d).
- There are no parts, producing any electric sparks, inside and also in the compressor compartment. Thus, flammable materials can be stored.
- Stainless steel interior and exterior
- Temperature alarm and voltage free contact for remote alarm are standard.

●Specifications

Model No.	EP-180	EP-400	EP-522	EP-351FR
Temperature range	0°C~+10°C	0°C~+10°C	-20°C~+5°C	F: -20°C R: 0°C~+10°C
Capacity	Approx.185 ℓ	Approx.403 ℓ	Approx.520 ℓ	F: Approx.80 ℓ R: Approx.280 ℓ
External dimensions	W610XD615+50XH1320mm	W750XD665+50XH1750mm	W850XD860+40XH1780mm	W750XD665+50XH1750mm
Internal dimensions	W510XD455XH800mm	W650XD505XH1230mm	W700XD625XH1190mm	F: W600XD465XH280 R: W650XD490XH875
Weight	Approx.110Kg	Approx.150Kg	Approx.210Kg	Approx.140Kg
Refrigerant	R-134a	R-134a	R-134a+R-404A	R-134a
Type of protection	fd2G4	fd2G4	fdi2G4	fd2G4
Power supply	100V 50/60Hz			



* The flammable gas and/or liquid below, in the light blue area, can be stored in the above explosion-proof appliances.

<Classification of electrical instrument for explosive fumes>

Explosion grade	Ignition grade					
	T1 (G1)	T2 (G2)	T3 (G3)	T4 (G4)	T5 (G5)	T6 (G6)
IIA (1)	Acetone	Ethanol	Gasoline	Acetaldehyde		
	Ammonia	Isopentyl acetate	Hexane	Ethyl ether		
	Carbon monoxide					
	Ethane					
	Acetic acid	I-butanol				
	Ethyl acetate	Butane				
IIB (2)	Toluene	Acetic anhydride				
	Propane					
	Benzenol					
IIC (3)	Methanol					
	Methane					
	Coal gas	Ethylene				
		Ethylene oxide				
	Water gas	Acetylene				
	Hydrogen					Carbon disulphide

Custom made models, based on the explosion-proof guideline of the Technology Institution of Industrial Safety (Japan), are also available. Please feel free to contact us.



Note: Do not store materials, which have any possibilities to produce water gas, hydrogen, acetylene, and carbon disulphide. Also do not store self-reactive substances. Do not use the appliances under the atmosphere that contains the above mentioned substances.