

F R E E Z E R S Y S T E M



Freezer System Co., Ltd.

Permanent/Robust Prefabricating System

Prefabricated Refrigerator/Freezer



Freezer F-Type Series

Robust Freezer Series : Perfect low-temperature management and storage.
Proper for frozen meat, frozen fish, a wide range of frozen processed foods etc.

- Panel Thickness: 100mm
- Operating Temp. Range : -20°C ~ -15°C
- Effective Dimension of Large Door : 700mm(w) x 1,800mm(h)



F19-051 (0.5 Tsubo)

Colored steel sheet FK19-051
PVC Steel Sheet F19-051



F19-101 (1.0 Tsubo)

Colored steel sheet FK19-101
PVC Steel Sheet F19-101



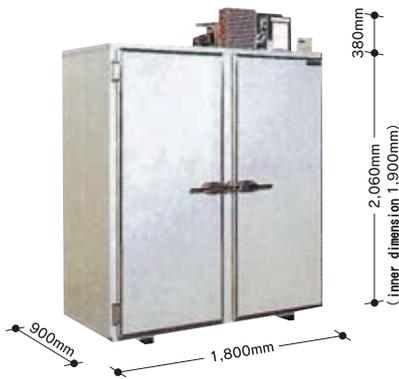
F19-151 (1.5 Tsubo)

Colored steel sheet FK19-151
PVC Steel Sheet F19-151

Refrigerator R-Type Series

Must Item for massive stock of vegetables, fruits, fish & meat products,
dairy products, beverages, etc.

- Panel Thickness: 43mm
- Operating Temp. Range : -5°C ~ -10°C
- Effective Dimension of Large Door : 700mm(w) x 1,800mm(h)
- Accessories : thermometer, floor grates, inside light (not available in case of under-1.0-tsubo refrigerators).



R19-052 (0.5 Tsubo)

Colored steel sheet RK19-052
PVC Steel Sheet R19-052



R19-051 (0.5 Tsubo)

Colored steel sheet RK19-051
PVC Steel Sheet R19-051



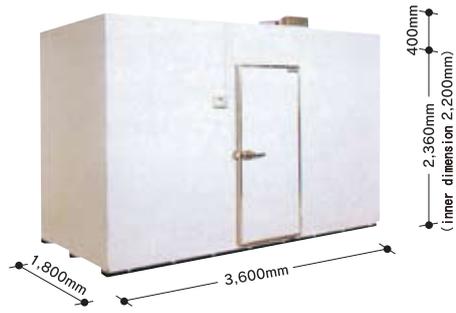
R19-101 (1.0 Tsubo)

Colored steel sheet RK19-101
PVC Steel Sheet R19-101



R19-151

Colored steel sheet RK19-151
PVC Steel Sheet R19-151



R22-201

Colored steel sheet RK22-201
PVC Steel Sheet R22-201



R22-301

Colored steel sheet RK22-301
PVC Steel Sheet R22-301

Floor Plan of Standard Type Dimensions

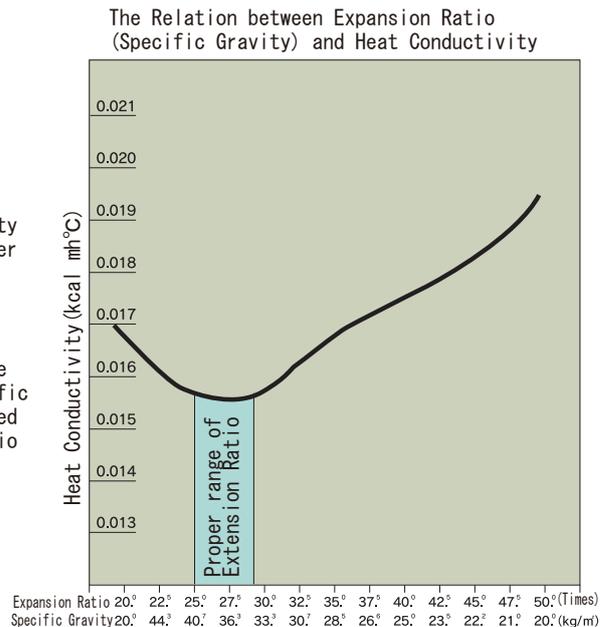
- ★ This Floor Plan is based on outer dimensions.
- ★ The blue line shows steel truss for suspending ceiling panels.
- ★ A refrigerator and a freezer can be combined at your discretion.
- ★ This Floor Plan is based on the standard dimensions of our refrigerators/freezers. So, their height is the same on this Floor Plan.
- ★ Door can be attached on any other panels than a corner panel. Its size and quantity is at your discretion.
- ★ Partition can be set inside our refrigerators/freezers for your convenience. Also door can be attached on the partition panel.



■ Referential Information

Confirmation on Expansion Ratio of Insulating Materials

Rigid urethane foam to be injected into and foamed in an insulation panel has a big difference in its quality & property depending on its foam expansion ratio. If the expansion ratio is set higher, the materials of urethane form reduce in quantity and cost. In this case, however, its specific gravity is lighter and so load-bearing quality becomes weak. Also, such urethane foam contracts too much and causes the warp of the panel. As shown in the right graph, insulation panel of such urethane form tend to conduct heat more easily and its insulating performance gets deteriorated. Therefore, whenever you purchase a freezer or a refrigerator, please be sure to check the specific gravity and the expansion ratio of the insulation materials used inside. This graph shows the proper range of foam extension ratio any insulation panel should have



Condensation on Panel Surface

When you install our refrigerator or freezer at a poor-ventilated place with high temperature and humidity, condensation may occur on the outer surface of its panels, especially on its floor. However, such condensation has nothing to do with the deterioration of the insulating performance. When you have to install our refrigerator or freezer at a poor-ventilated place with high temperature and humidity, please be sure to following the countermeasures ①~③ below.

- ① Set up ventilators or air fans to get the area around the refrigerator/freezer well-ventilated.
- ② Use an air blower or similar device for the floor area for better ventilation.
- ③ If the use of such air blower is impossible, please be sure to prepare drain ditch under the floor to remove the condensation.

Panel's Average Heat Transmission Coefficient

Model Type	Thickness (mm)	Heat Transmission Coefficient (Kcal/m ² h°C)
R, RK	43	0.394
M	50	0.342
L	75	0.231
T, TK	90	0.194
F	100	0.175
X	125	0.141
Y	150	0.118

Dew condensation point is calculated by the following formula

① Formula to calculate panel's outer surface temperature

$$t_o = t_a - \frac{K}{\alpha_1} (t_a - t_b)$$

t_o = Panel's outer surface temperature °C (Dew point temperature)
 t_a = Outside air temperature °C
 K = Panel's Heat Transmission Coefficient Kcal/mh°C
 α_1 = Heat conductivity rate of the air outside our system. Kcal/mh°C
 t_b = Air temperature inside our system. °C

② Formula to calculate limit relative humidity to prevent dew condensation on panel's outer surface.

$$\phi = \frac{PW}{PWS} \times 100(\%)$$

ϕ = Limit relative humidity to prevent dew condensation on panel's outer surface (%).

PWS = Partial pressure of saturated water vapor at the outer temperature (mmHg).

PW = Partial pressure of saturated water vapor at panel's outer surface temperature (mmHg).



▲ 100% Stainless Steel Door Latch

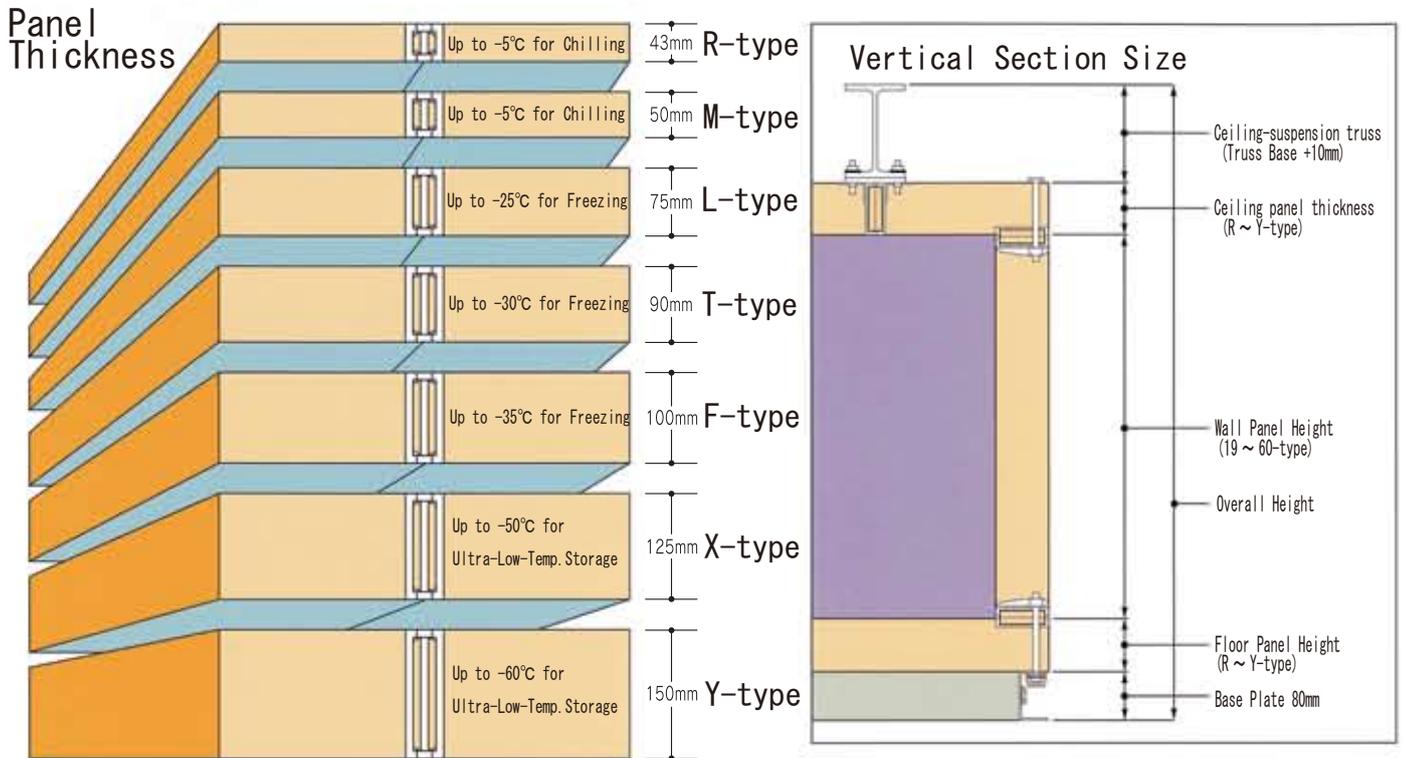
Emergency Escape System ▶



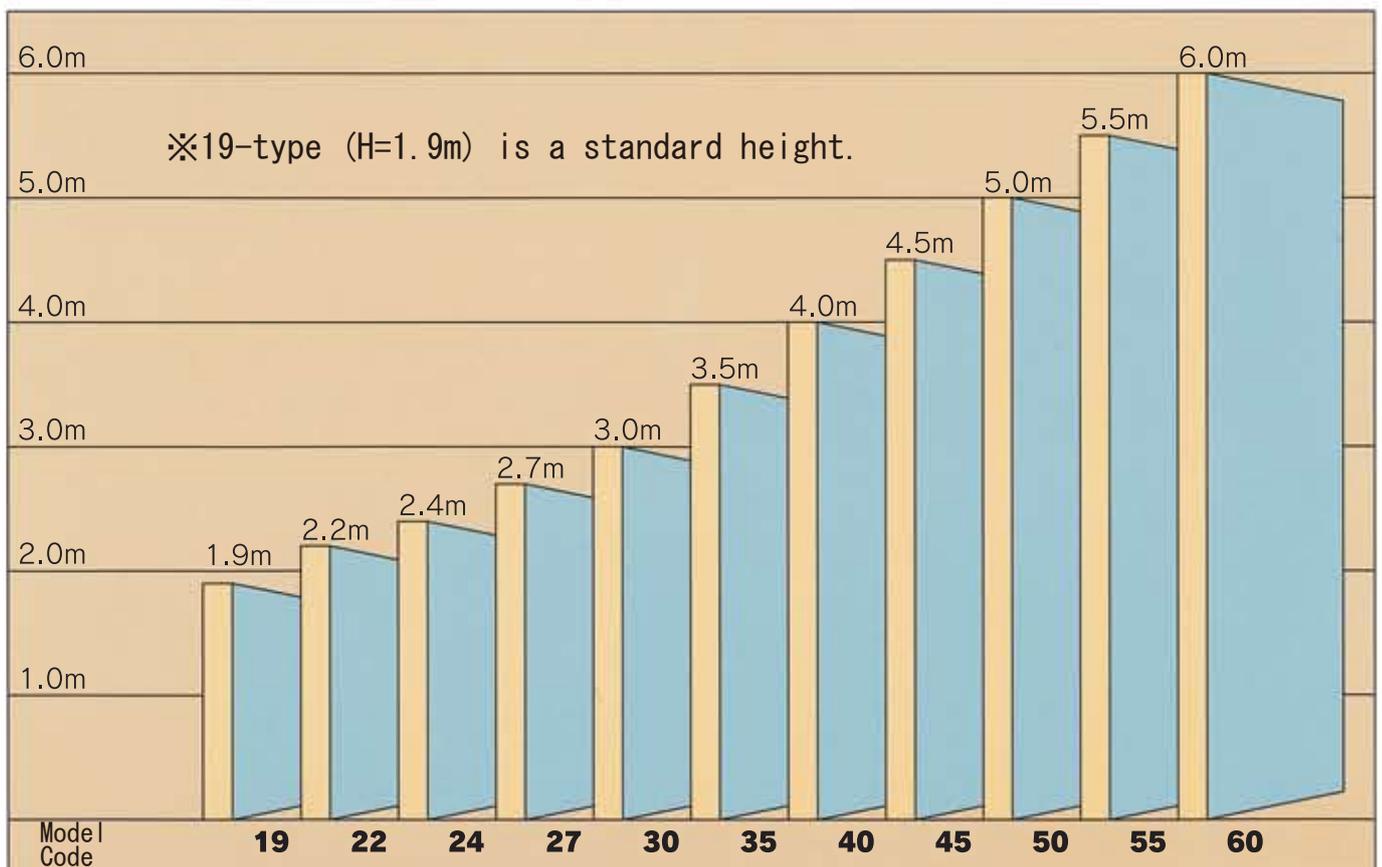
Stainless-Steel Door Latch (with Dual Emergency Escape System)

We have adopted a very robust door latch on the FS panel. This door latch and its handle are press-formed from stainless steel. Generally, door latch and its handle are the most damageable parts of a door, and so they must be excellent in durability and robust for a long-term usage. Our door latch and its handle satisfy this requirement. Our door is equipped with double structure for safety reason: Pushing stick (anti-dew condensation type) that opens the door from the inside and emergency escape system.

Panels of our Refrigerators and Freezers : Rich Variety to Satisfy Diversifying Needs



Panel Height (Standard type)



Satisfying the Needs of the Times, our Technology is Applied into Every Field. Now We are Seeking New Opportunities!



Safety Cautions

● Please be sure to read carefully Instruction Manuals before use and to use our systems correctly.

- (1) When you install our system, please be sure to ask in advance the sales agent from which you purchased it or professional engineers to install it. If you install the system by yourself, defective installation, electrical shock or fire may result.
- (2) Please be sure to install our system on a firm, highly durable flat area and install it on the level. In case that you install it on a weak, slant or uneven area, the main body of our system may be tilted, fall down or get wet.
- (3) Never use in any outdoor place an inside-use item. Otherwise, fall, ground-fault or electrical shock may result. Please consult with professional engineers for technical details to comply with applicable laws and regulations.
- (4) Never install our system in any areas where combustible gas leakage may happen. If leaked gas get around the main body, fire may occur.
- (5) Before electric work, please be sure to read carefully "Technical Standard on Electric Equipment," "Inner Wiring Regulations" and "Installation Manual", and follow them strictly while working. Also be sure to make specialized circuits for our system for safety.
- (6) Never bring into or put in our system any volatile and/or flammable chemicals or similar items (such as benzene, ether, adhesive agents, LPG, and so on). Otherwise, fire or explosion may result.
- (7) When you want to relocate panels of our system or increase the number of panels, please be sure to consult with the sales agent from which you purchased it or professional engineers beforehand. Never work on the relocation or increase by yourself. Otherwise, defective installation, electrical shock, fire or other accidents may result.

Please be noted that the contents of this brochure may be subject to change without prior notification.

Technical Requests on your Order

- (1) You need a preferably completely flat area of concrete slab, whose thickness shall be 100mm or more, for installing our system on the level. (Clearance work will be required.)
- (2) As for doors, please determine the number of doors, their size, installation position and which side shall be opened/closed.
- (3) Please clearly determine the operating temperature inside our system.
- (4) Please clearly determine the installation positions of Freezing Unit and Freezer and Unit Cooler.
- (5) Please carefully consider the height of our freezer/refrigerator you use inside your factory. Also be careful about the canopy or electric wires of other buildings around our system if you consider installing it outside.
- (6) When you install our system outside, please determine the size of its roof. Also, please be careful about the building around it.
- (7) As for the primary power source for electric work (3Φ200V and 1Φ100V), please be sure to prepare the source close to the position at which Freezing Unit and Freezer will be installed. (Clearance work will be required.)
- (8) In case of water-cooling system, please be sure to prepare a water-supply valve close to the position at which Freezing Unit will be installed. (Clearance work will be required.)
- (9) Please check whether or not you need to attach an auto-balancer (pressure adjustment valve) on our freezer you will purchase. (The auto-balancer needs to be additionally ordered.)
- (10) One (1) large door, one (1) inside light, one (1) drain outlet, and one (1) thermometer comes with our system as its standard specification. If you want additional doors, inside lights, drain outlets, please be sure to inform us.
- (11) If you are in a snowy area, please consult with us about the countermeasures against the accumulation of snow in winter, a variety of additional support is required for our system, depending on your areas and situations. If you have any other kinds of questions or inquiry, please contact our factories, sales offices, engineers or sales persons.

Freezer System Co., Ltd

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Hokuriku sales office /665-3 Fukumasumachikita, Kanazawa-shi, Ishikawa 920-0376
TEL:076-249-2309 (Main Line) FAX:076-240-6151

Tokyo Sales office /5-24-4 Matsue, Edogawaku, Tokyo 132-0025
TEL:03-6663-6610 (Main Line) FAX:03-6663-6620

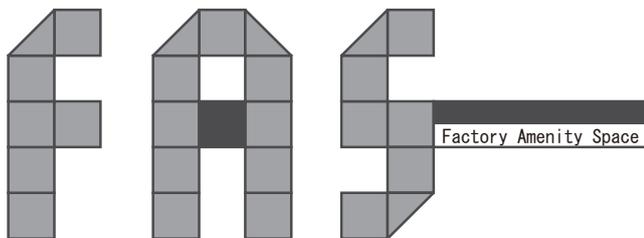
Tokyo show room /1-2354-100 Yurigaoka, Moriya-shi, Ibaragi 302-0110
TEL:0297-47-8321 FAX:0297-47-8320

Fukuoka show room /958-5 Ariyasu, Iizuka-shi, Fukuoka 820-0111
TEL:0948-82-4412 FAX:0948-83-1132

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Tsukuba Plant /1436-8 Hanashimamachi, Jyousou-shi, Ibaragi 300-2511

Hokkaido Plant /23-130 Asahidai, Kuriyamachi, Yubari-gun, Hokkaido 069-1507



Factory Amenity Space

