Freezertech Vertical Plate Freezers
Engineered for capacity
Vertical Plate Freezers

Freezertech vertical plate freezers are world renowned for their strong, long lasting construction, with an ergonomic and hygienic design.

The product is simply poured into the pockets between the plates and is frozen. The vertical plate freezer is available in standard block thicknesses of 75 and 100mm, but models to suit any block thickness can be built, such as 50 and 65mm blocks.

The vertical plate freezer enables rapid freezing of raw food products through its direct contact method of freezing, which offers a significant energy saving and reduced freezing time over traditional air blast freezers.

These cost savings are also benefitted by the fact the product is poured directly into the freezer, not requiring expensive packaging which can increase freezing time and is liable to get damaged during use.

Semi-automated loading and unloading systems allow a high product throughput for very low labour costs.

Vertical plate freezers are of significant importance in the raw frozen foods industry, where lack of packaging means the product has to be well contained within the freezer, and the rapid dual-contact freezing action is essential to avoid discolouration, enzymatic and cellular breakdown in the food products, significantly ones with high water content where ice crystal formation from slow freezing becomes a problem.
Adjustable Construction

Built with adjustable front spacers - ensuring maximum product tightness throughout the life of the freezer.

The front spacers are of food safe Aluminium which enables rapid cooling to completely minimise drip loss of product.

All lifting arm covers (UHMW or Aluminium) are dual-pinned to prevent any contraction when freezing, to further help prevent against losses.

Stainless Steel Fixings

All bolts, fixings & fittings are of grade 304L for maximum life and hygiene.

Includes

- Bolts & Nuts
- Plate Adjusters
- Link Bolt Rollers
- Refrigerant Headers
- Hydraulic Cylinders
- Hydraulic Pipe & Fittings
- Front Top Member
- Rear Deflector Cover

Optional full 304L Stainless Steel framework is available, or Stainless Steel / HDPE Covers can also be supplied
High Visibility Plastics

All plastics are approved for food contact, and are made from high visibility UHMW & HE Polyethylene.

Generous 20mm low friction wear strips are provided for the plates, for long life and insulation against the cold plates.
Leak-free Hose Joints

Special anodized Aluminium hose connections into the plate ensure a completely leak free service life.

The hose features a male connection into the plate (which then cannot unscrew in operation), and uses a circumferential O-ring which does not rely on compression to seal; unlike tapered thread or gasket designs.

Anodized Aluminium fittings prevent any galvanic corrosion of the sealing face in marine environments, and with a backup O-ring protecting the main sealing face, you can be sure of dependable production.

All the hoses feature spiral-convoluted PTFE inner hose, for maximum flexibility, covered with a 304L Stainless Steel braid, and an optional crimped Silicone sleeve on the outside - which prevents ice build up potentially damaging the hose, and maintains a hygienic cleaning solution.

All plates are fitted with Helicoil’s from new to prevent any thread damage during service.
Extended Lift Cleaning

As an optional extra, extended cylinder stroke can be supplied to enable the lifting arms to be brought out of the freezing during cleaning cycles - allowing easy unobstructed access to the bottom of the arms.

The arms are located in place still via small plastic guides to minimise the time spent going back into production.
Freezertech’s in depth technical knowledge of refrigeration & valve stations allow us to offer a unique perspective when it comes to installing plate freezers.

Compared to traditional systems, a Freezertech designed installation can typically achieve savings up to 10% on the cycle time.

Comparing a 3” block on Ammonia at -40°C

Traditionally

107 minute freezing time
5 minute defrost time
20 minute unloading / reloading time

Total = 132 minute

Freezertech High Capacity

100 minute freezing time
1.5 minute defrost time
20 minute unloading / reloading time

Total = 121.5 minute

Cycle time saving = 8%

Production increase 8.7%

Same Refrigerant, same Temperature

Better knowledge.
Traditionally

Under sized Suction Valves
Leads to increased pressure drop in the lines = higher temperature in the plates

Too much refrigerant overfeed
Leads to increased pressure drop in the lines = higher temperature in the plates. Any excess liquid must be lifted back to the receiver and this costs energy

Under sized Hot Gas lines
Low Capacity = long defrost times, and higher heat input into the product. Soft spots on the product affect the value

Pressure relief valve draining of the freezer during defrost
Low capacity = longer defrost times, and higher heat input into the product. Works on pressure only, so can waste hot gas = wasted energy & money

Raising condensing pressure during defrost
To try and make up for under sized lines = wasted energy & higher heat input into the product.

Liquid Hammer from incorrect piping
Can damage / destroy valves & hoses. Can extend defrost times

Visual Inspection Only
Leads to over freezing & over defrosting. Wastes energy and can damage product. Not defrosting properly can damage lifting arms & plates

Freezertech High Capacity

Correctly sized Valves & Hoses
Lowest possible pressure drop in suction line, especially important at cycle start where the capacity is highest

Lower Overfeed Rates
Carefully calculated to prevent excess refrigerant feed and maintain fastest possible freezing times.

High Capacity Defrost
Shortest possible defrost times, with maximum pressure differential. Increased production & lower heat input into the product = higher product value. Correct draining ensures no wasted hot gas & higher plant efficiency.

Lowers condensing pressure during defrost
Saves energy whilst defrosting through a lower condensing pressure (approx 1% saving for every 1 °C)

No liquid hammer
“Soft Start” defrost and draining allows for a high capacity, without any risk of damage from liquid hammer.

Intelligent Control
Temperature sensors ensure a defrost is carried out properly before allowing hydraulic operation. Sensors are available to monitor the temperature of the product throughout the cycle also.

Highest possible capacity, at the lowest possible temperature

• Higher product value
• Increased production
• Reduced energy cost
• Reduced Ammonia leaks
Capacity & Dimensions

<table>
<thead>
<tr>
<th>Freezer Size</th>
<th>10 Station</th>
<th>16 Station</th>
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</thead>
<tbody>
<tr>
<td>Block Thickness / Weight</td>
<td>2” (25kg)</td>
<td>3” (38kg)</td>
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<tr>
<td>Batch Load</td>
<td>250 kg</td>
<td>375 kg</td>
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<tr>
<td>Freezer Length</td>
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<td>1726 mm</td>
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<tr>
<th>Freezer Size</th>
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<th>26 Station</th>
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<tbody>
<tr>
<td>Block Thickness / Weight</td>
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<td>3” (38 kg)</td>
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<tr>
<td>Batch Load</td>
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<td>Freezer Length</td>
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<th>Freezer Size</th>
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<th>36 Station</th>
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<tbody>
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<td>3” (38 kg)</td>
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<tr>
<td>Batch Load</td>
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<td>Freezer Length</td>
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</table>

Based on a 1060 x 530mm block size

Standard Block Sizes

- 1060 - 530mm
- 1210 - 400mm
- 800 - 800mm

3” and 4” block thicknesses

Other sizes / thicknesses on request

Standard Refrigerants

- R22
- R404
- R507
- R717
- R744 (CO2)

Others available on request