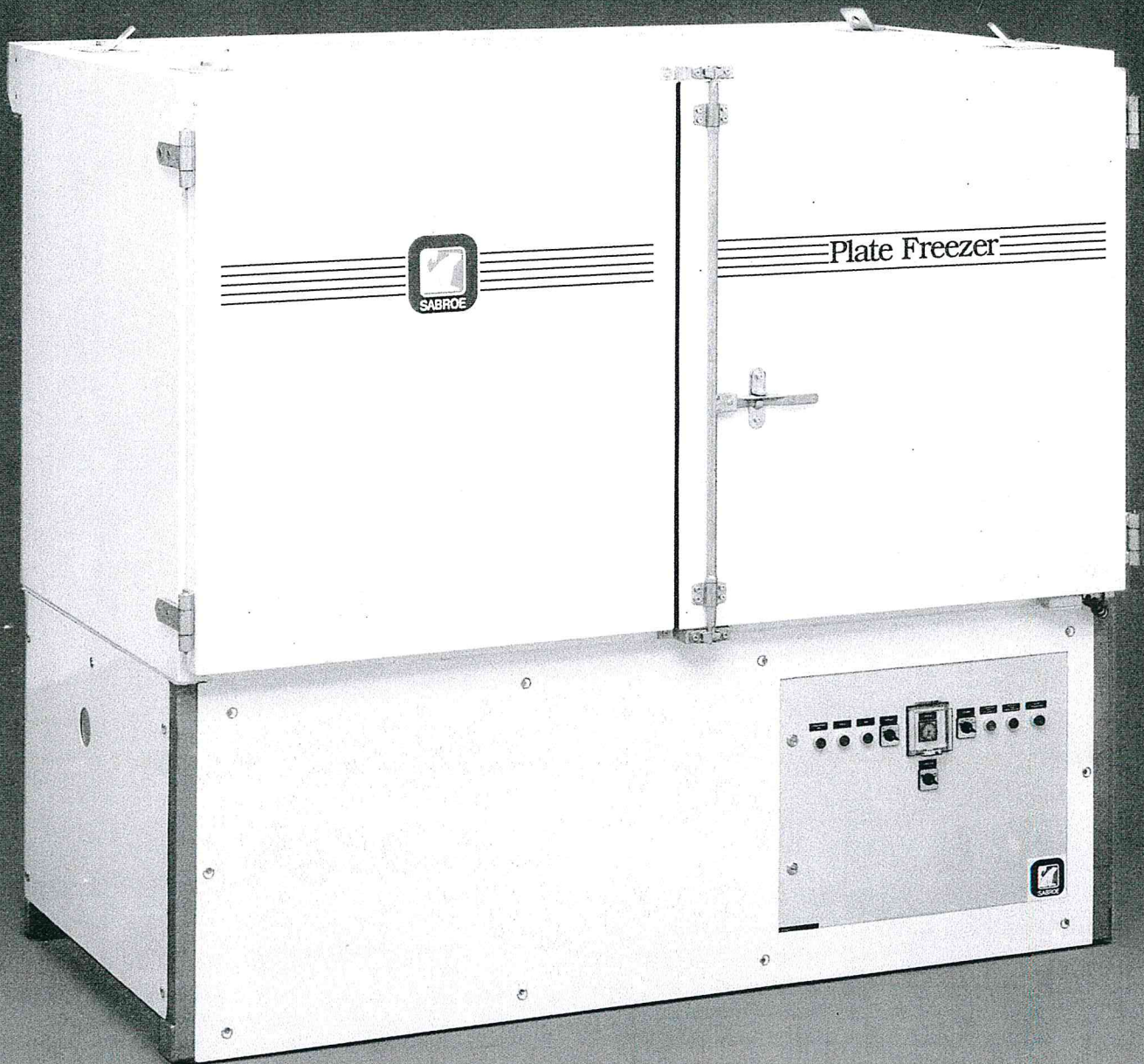




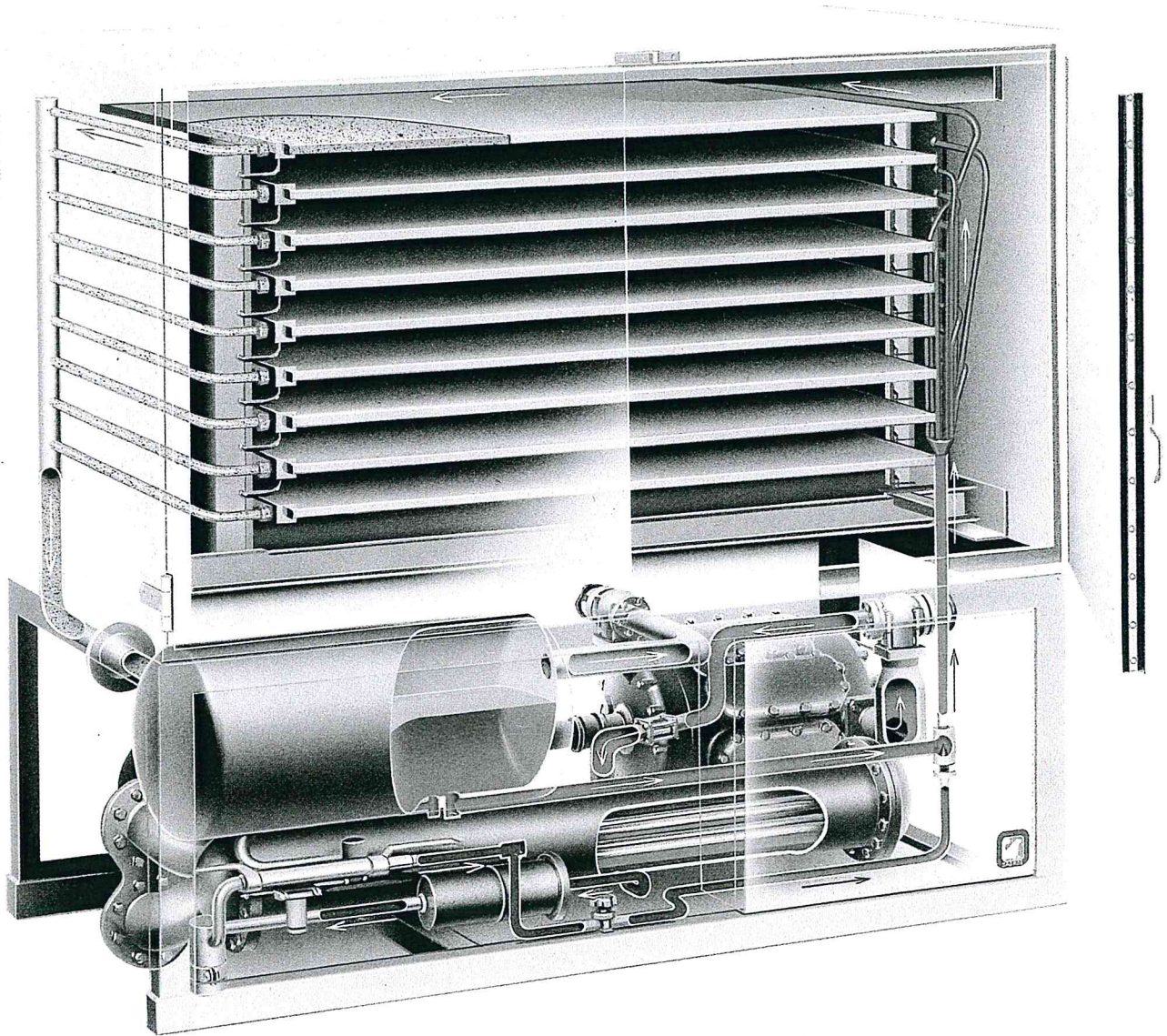
SABROE

Packaged Plate Freezer



Type PFP 174

Advantages on a Plate



Why plate freezing?

- Plate freezing is a fast and very economic way of freezing, due to direct contact heat transfer between the cooling medium and the product.
- The fast, low temperature freezing maintains the natural quality of the product. Meaning no discolouration, no breakdown in cell structure and no dehydration of the product and, therefore, no loss of weight.
- A plate freezer is capable of freezing a large variety of products.
- Packages frozen in a plate freezer are flat and uniform – they look good and stack well.

Why SABROE plate freezing?

- The SABROE plate freezer, type PFP 174, is a self-contained unit, including a complete refrigeration plant. Heavy industrial type, two-stage compressor implying high efficiency and low power consumption.
- The complete unit has been designed according to industrial standards, and only the best materials have been used. Long, trouble-free operation and low maintenance costs are, therefore, assured.
- The PFP 174 is available with a variety of optional extras, ensuring maximum utility of the unit for many different purposes.

Applications

The PFP 174 plate freezer will give perfect results within an extensive range of applications, provided the products are good heat conductors and are packaged correctly.

Seafoods such as fish and shrimps, either at sea or on shore, can be frozen in the PFP 174. Also meat, ice cream, vegetables, and pre-cooked meals in the catering business are ideally suited.



Nominal capacities

Product	Thickness		Freezing stations					Minutes
	mm	in	6	7	8	9	10	
			kg lb	kg lb	kg lb	kg lb	kg lb	
Fish	50		492	574	656	738	820	85
	2		1084	1264	1445	1625	1805	
Whole Shrimps	70		492	574	656			165
	2¾		1084	1264	1445			
Meat	60		588	686	784	882		105
	2½		1295	1511	1727	1942		
Fruit & Vegetables	50		372	434	496	558	620	85
	2		819	955	1093	1230	1365	

Wrapping: Cardboard carton.
Initial temperature: 10°C.
Specified core temperature: -20°C.

Nominal capacities and freezing time may vary according to type and size of packages.

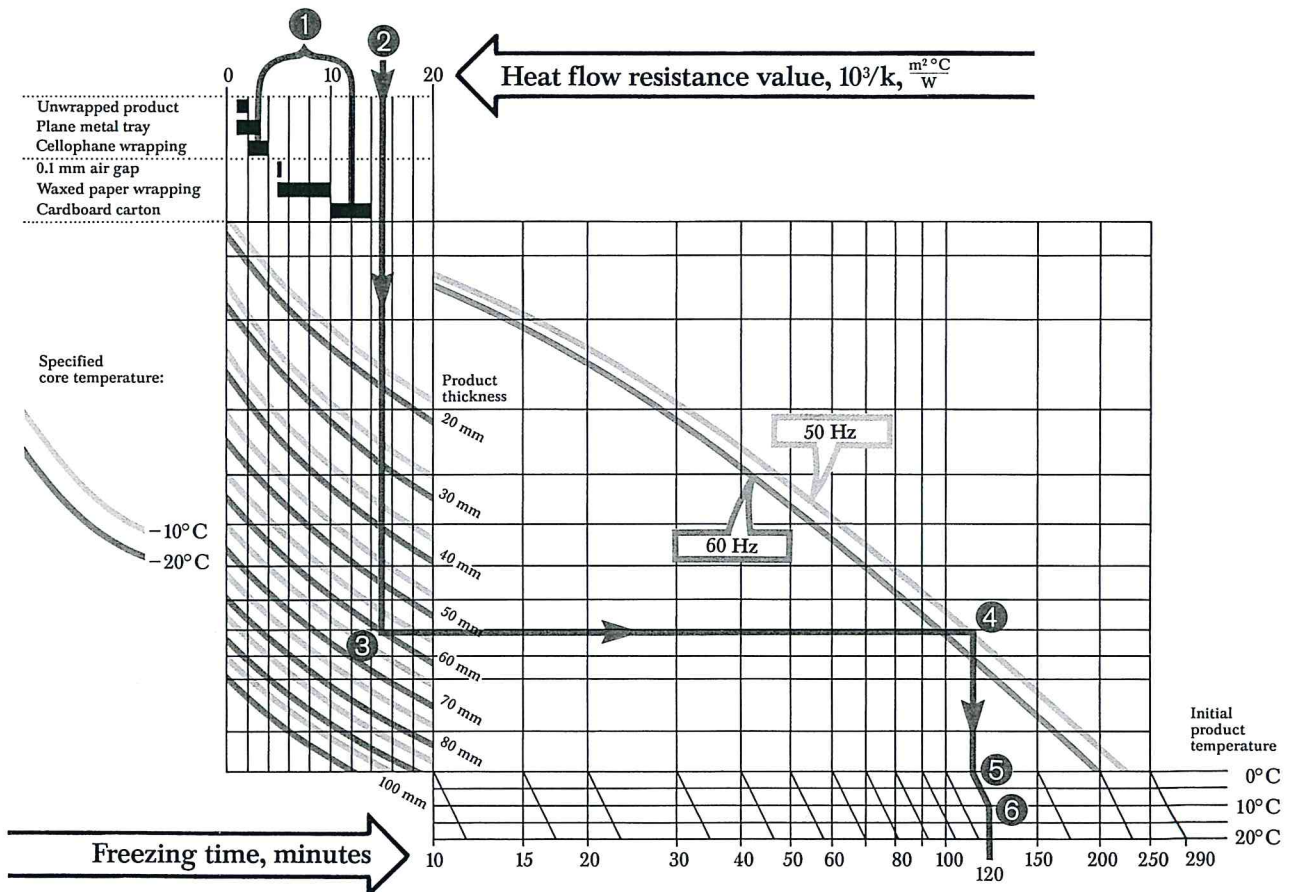
Freezing stations

Number of freezing stations		6	7	8	9	10
Distance between plates, mm	max.	116	97	82	71	62
	min.	42	42	31	31	31
Freezing area each plate		1.55×1.12 = 1.74 m ²				

Freezing Time

The freezing time depends on various factors, e.g. initial and final temperature of the product, product thickness, type of packing and wrapping material. To determine an approximate freezing time for your particular product, use the freezing time diagram below.

Uncertainties regarding heat flow resistance values may cause the actual freezing time to deviate from the time indicated in the diagram.



The freezing time should be extended by 20–30% for loosely packed products, such as whole shrimps.

Example

Product: Fish, 60 mm thick
 Packing material: Cardboard carton and cellophane
 Initial temperature: $10^\circ C$
 Specified core temp.: $-20^\circ C$
 Power supply: 50 Hz (cycles)

- Find the heat flow resistance values ① and add them together:
 Cardboard carton: $10^3/k = 12$
 Cellophane wrapping: $10^3/k = 3$
 Total: $10^3/k = 15$
- Enter diagram with total resistance value: 15. ②
- Go down until intersection with the curve for 60 mm product thickness and $-20^\circ C$ specified core temperature. ③

- Go right to the intersection with 50 Hz curve. ④
- Draw a vertical line until intersection with the initial temperature line $0^\circ C$. ⑤
- Follow the sloped line for intersection with the initial temperature line $10^\circ C$. ⑥
- The approximate freezing time can now be read at the bottom of the diagram: 120 minutes.

Freezing capacities

For loading and unloading allow 10–15 minutes.

To determine total freezing capacities calculate load per freezing station (no. of packages \times weight of package) and multiply by number of freezing stations and number of freezing cycles possible within working hours.

Description

SABROE PFP 174 is a compact, selfcontained plate freezer that only requires connecting to cooling water and main power supply. The complete refrigeration plant, including a SABROE high efficiency, two-stage compressor, condenser for sea water, liquid separator, total piping, temperature control, and all necessary safety devices is placed in the bottom of the unit.

A hydraulic system is also located in the bottom of the unit, to ensure the necessary contact pressure between the product and the freezing plates.

The noise level of the machine is low, making it possible to place the unit in a populated working area.

The top section is built over a sturdy, hot dip galvanized steel frame, with a fibreglass clad cabinet, which is vapour sealed and insulated with polyurethane. All hinges are galvanized and flexible hoses are made of stainless steel. The unit is, therefore, well protected against corrosion.

Double doors at the front and rear, opening a

full 180 degrees, and equipped with low voltage heating strips, make loading and unloading an easy job.

The freezing plates are made of food quality aluminium extrusions with a plane surface, to ensure good contact between the freezing plates and the product.

All electrical components are mounted in a panel with IP 54 watertight enclosure. The panel includes switches for capacity control and for the hydraulic system, indicator lamps, alarm, automatic star delta starter, overload and recycling protection, control circuit breaker and a freezing timer as standard equipment.

The complete plate freezer is factory tested for all functions, and all control equipment is factory adjusted.

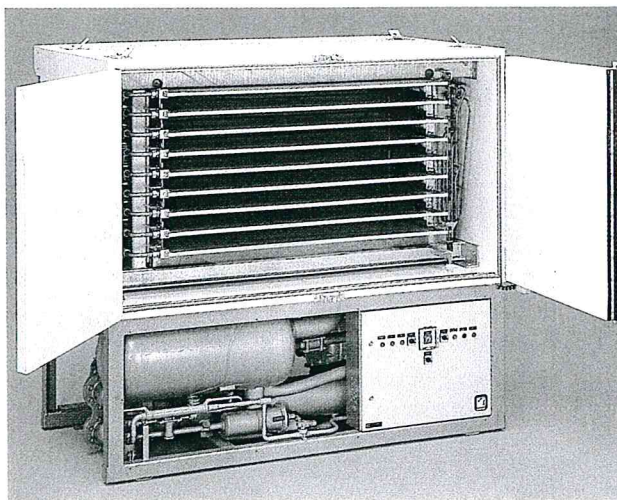
The unit is available in two main versions:

- EUR (European) and
- CSA (Canadian with ASME vessels).

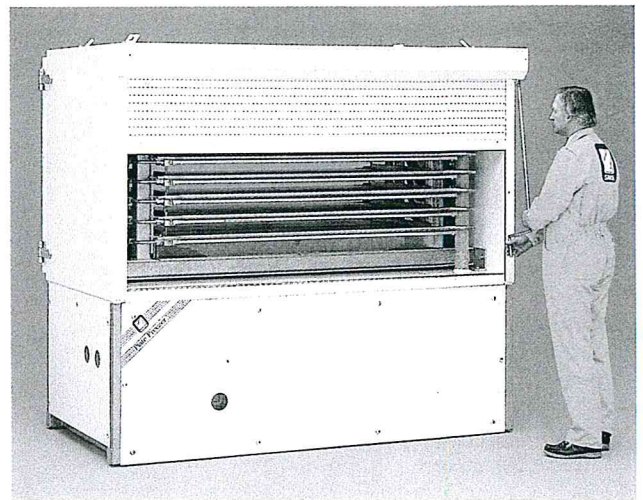
For special classification requirements please contact SABROE head office.

Optional Extras

- Split-unit with condensing unit placed beside the plate freezer.
- Cabinet with doors on one side only.
- Insulated blinds instead of doors.
- Unit without cabinet.
- Unit with remote electrical panel.
- Anti-roll bars on plates for marine applications.
- Automatic valve for condenser water. Required when water temperature is too low.

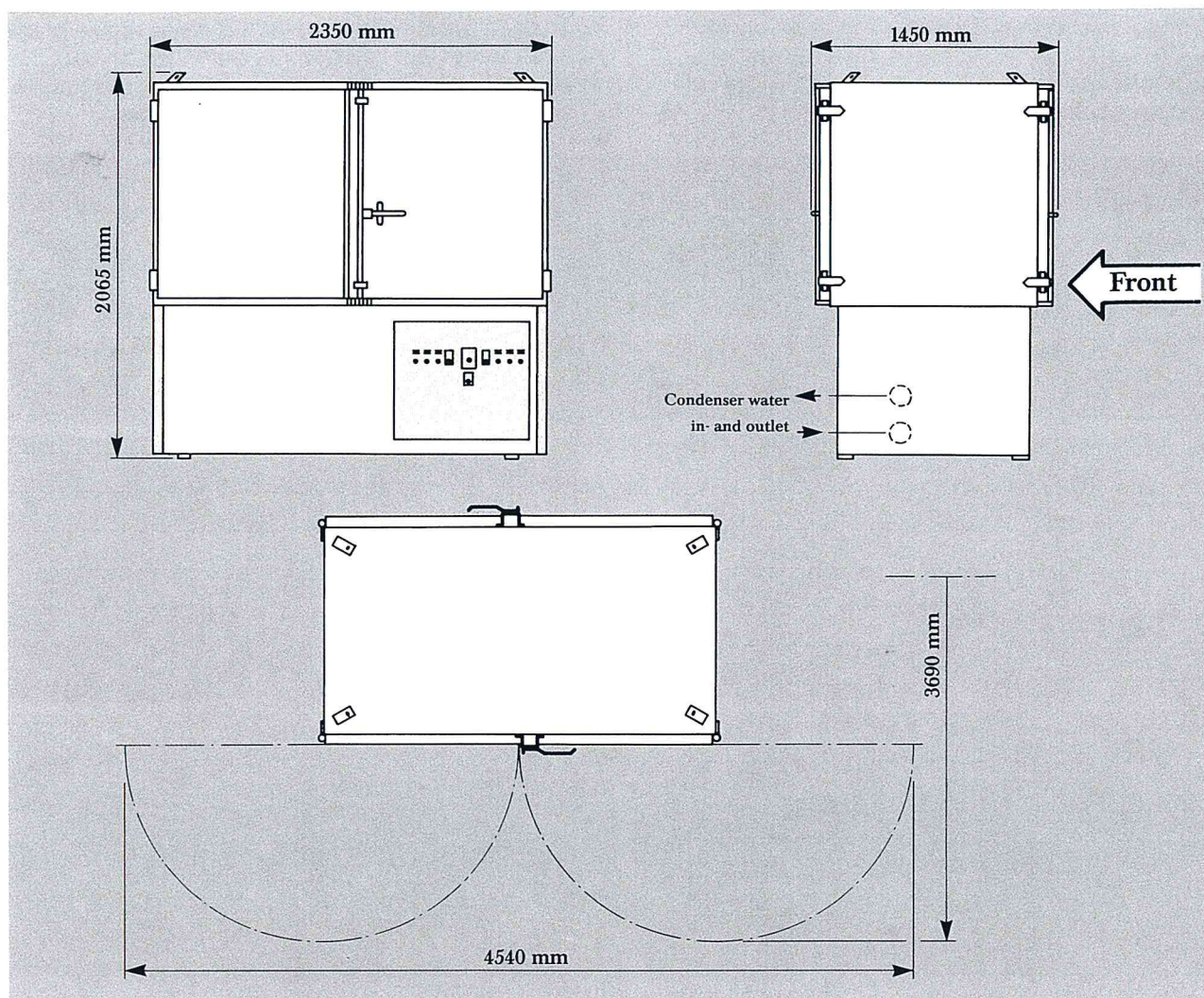


Unit without cover plates on bottom section.



Unit with insulated blinds. Anti-roll bars on freezing plates.

Dimensions



Weight

Type	PFP 174-6	PFP 174-7	PFP 174-8	PFP 174-9	PFP 174-10
No. of freezing stations	6	7	8	9	10
Charge of R 22, kg	80	85	90	95	100
Operating weight, kg	3350	3425	3500	3575	3650

Shipping volume: 9.3 cu m

All information is subject to change without notice:



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