



Automatic Contact Plate Freezers

Used and Reconditioned

or NEW



More packaged product is frozen in APV Crepaco contact plate freezers than by any other method in the world.

Performance proven for over 30 years, APV Crepaco automatic contact plate freezers offer high capacity production freezing of packaged products on a continuous basis. An efficient direct double contact plate design enables these machines to rapidly freeze the product which ensures quality by minimizing shrinkage and dehydration. These units are used successfully to freeze meat, poultry, bakery products, fish, vegetables, ice cream and specialty entrees. For other applications a pilot plant test may be scheduled to demonstrate the contact plate freezing principle.

Automatic plate freezers come in a number of sizes and throughput rates to suit any continuous freezing operation. All are compact, rugged and simple to operate.

Benefits of contact plate freezing

Product Quality Preserved

The rapid freezing of the contact plate method helps maintain desired product characteristics such as texture and flavor. Much smaller ice crystals are formed within red meats, poultry and delicate seafood tissues than is possible with systems designed to freeze product at slow rates. Food cell damage is virtually non-existent. Nutrient fluids and the flavor and aroma elements, essential to retaining product identity after thawing, are largely preserved. The rapid freezing rate also circumvents the risk of product discoloration, further enhancing product acceptance at the consumer level.

Cost Savings in Energy Use

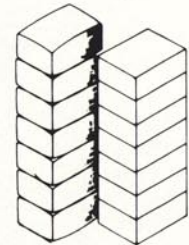
During the freezing cycle, the top and bottom of each food package is in contact with the freezing surface of the contact plate. Since the refrigerant flows through passageways in the flat aluminum

freezer plates, the surface temperature in contact with the package is very near that of the refrigerant temperature. Further, the refrigerant flow is engineered to provide uniform temperatures over the entire plate area, assuring optimum freezing performance.

The combined principles of non-consumable recirculated refrigeration and direct heat absorption through intimate contact with the product surfaces provide outstanding overall freezing economy. Though many variables affect cost, long experience in providing contact plate freezers for a wide range of products indicates that this freezing method is typically less expensive than air blast or cryogenic alternatives.

Reduced Packaging Costs

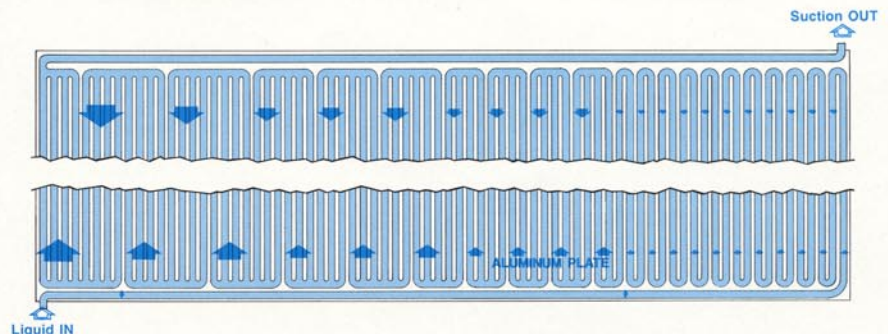
In a fully loaded station comprising a single layer of package product, the top and bottom package surfaces are in direct contact with the flat freezer plate surfaces and all package sides are in contact with adjacent packages throughout the freezing cycle. The result of this is a uniformly smooth, flat-sided frozen package that stacks well; can be readily shrink-wrapped for pallet-load handling; consumes minimal storage area; and provides excellent retail appearance and acceptance.



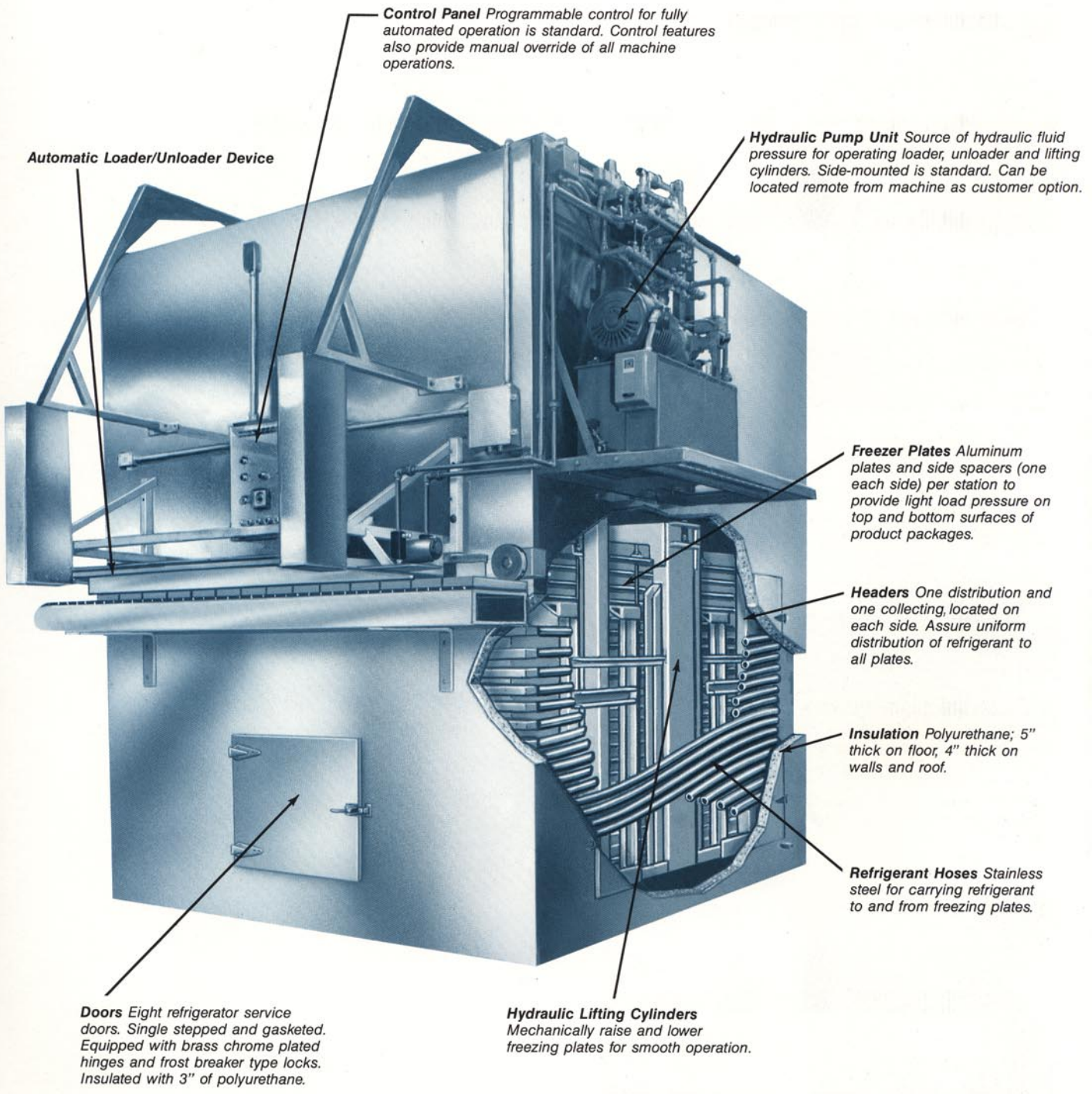
Minimal package side movement may provide the opportunity to use lower cost, nominal thickness packaging materials with no sacrifice in the appearance of the final frozen product. These reductions in packaging material thickness and/or the elimination of secondary protective wrappings often contribute to added improvement in freezing performance.

The latest in aluminum plate design

Refrigeration media is efficiently circulated through the use of progressive parallel streaming. This provides maximum saturated (wetted) refrigerated surface while maintaining the desired low pressure drop. Maximum utilization of heat exchange surface provides uniform fast freezing over the entire surface of the plate.



Features



Control Panel Programmable control for fully automated operation is standard. Control features also provide manual override of all machine operations.

Automatic Loader/Unloader Device

Hydraulic Pump Unit Source of hydraulic fluid pressure for operating loader, unloader and lifting cylinders. Side-mounted is standard. Can be located remote from machine as customer option.

Freezer Plates Aluminum plates and side spacers (one each side) per station to provide light load pressure on top and bottom surfaces of product packages.

Headers One distribution and one collecting, located on each side. Assure uniform distribution of refrigerant to all plates.

Insulation Polyurethane; 5" thick on floor, 4" thick on walls and roof.

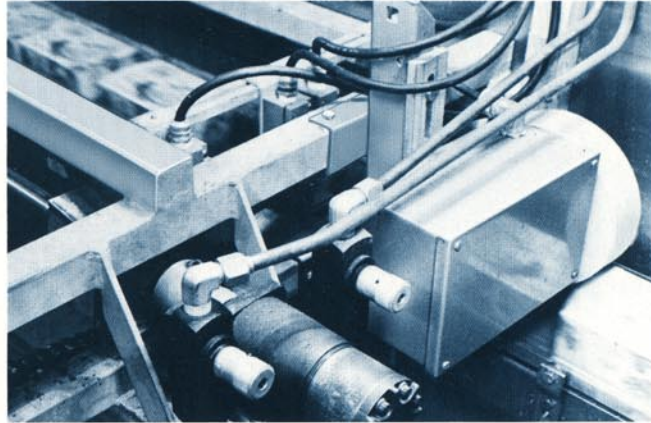
Refrigerant Hoses Stainless steel for carrying refrigerant to and from freezing plates.

Doors Eight refrigerator service doors. Single stepped and gasketed. Equipped with brass chrome plated hinges and frost breaker type locks. Insulated with 3" of polyurethane.

Hydraulic Lifting Cylinders Mechanically raise and lower freezing plates for smooth operation.



Control Panel Programmable control for fully automated operation.

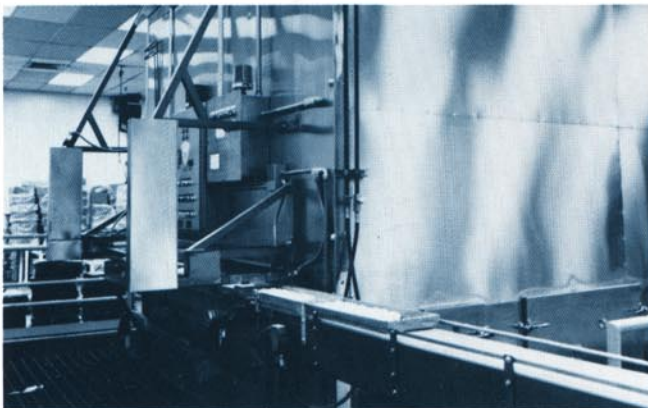


Sensor Wheel When a row of infeed (unfrozen) product is full, a non-driving sensor wheel activates the infeed pusher mechanism.



Automatic Infeed Fresh packaged product being conveyed into position just prior to being automatically infeed to the freezer.

Automatic Discharge Rear of freezer showing frozen product being discharged onto independently driven conveyor assembly.

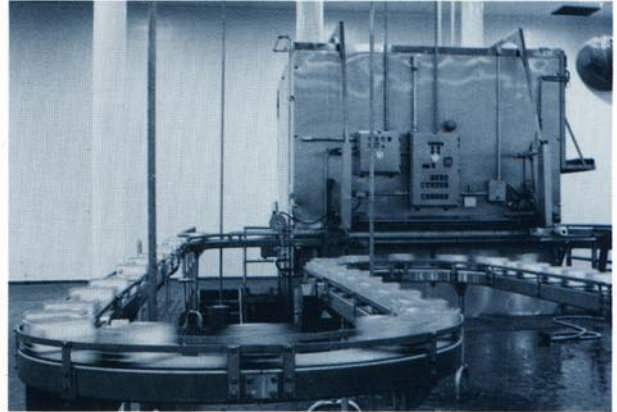


Infeed Conveyor Optional infeed conveyor for routing product to automatic infeed assembly.

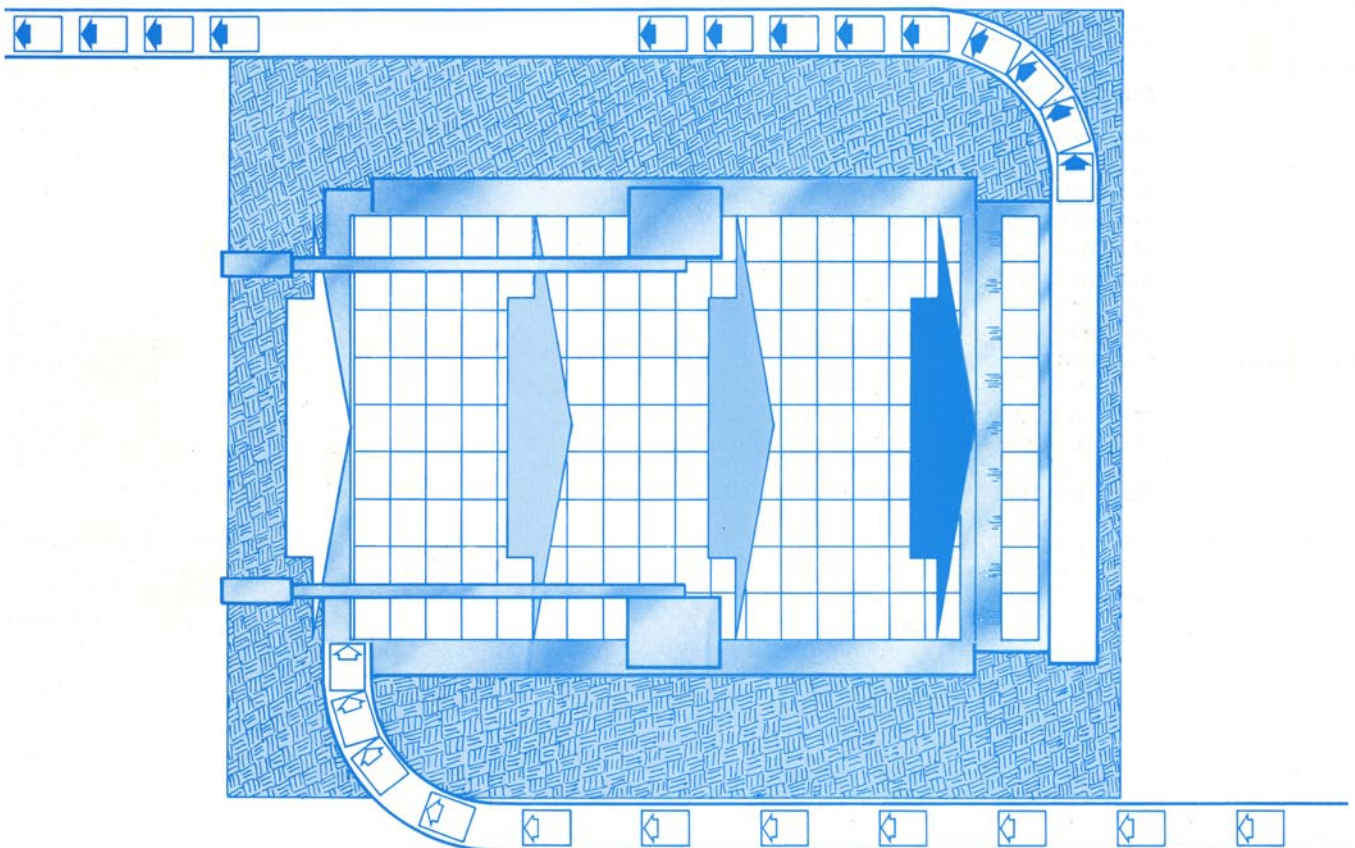
Operation

Operating on a “first in — first out” basis, packages are routed by conveyor from the filler/packaging equipment to the infeed conveyor (available as a customer option). A sensing wheel signals when a complete row of packaged product is in position and activates the automatic loader/unloader device. A full length pusher blade sweeps the row of packaged product into the front of the freezer to a predetermined depth. Succeeding rows of unfrozen packages are loaded into the first station until it is completely filled. The next freezing station is automatically moved up to position for product loading. When the last station is filled, the freezer automatically recycles, and all stations, as a single unit, are lowered to the bottom of the freezer.

Model 35 Automatic Contact Plate Freezing Operation



When the product in the first station has had sufficient residence time to be completely frozen, unfrozen product entering the first station discharges the frozen product through simple displacement.



Time/Temperature Freezing Performance

Listed in the chart below are products, their weight/volume, package thickness, infeed temperature, retention time and refrigeration factor. Using these figures as a guideline, the processor can approximately determine the process parameters for his product.

Considerations that affect chart use:

- Prepared foods may vary in refrigeration loads due to use of different raw materials.
- Tonnages shown in the chart are reference point figures. Actual refrigeration factors should be calculated for each condition.
- Higher temperatures at the suction side of the refrigeration will generally require an increase in product retention time.
- The discharge of product at core temperatures higher than shown and allowed to equalize may materially decrease required retention time.
- Retention time is affected by product composition, packaging technique, package type and other variables.

Product Group	Product	Weight or Volume	Freezing Thickness		Entering Temperature		Retention Time (in Minutes)	Refrigeration Factor
			Inches	Cm.	F.	C.		
Vegetables	In Sauce	10 oz.	15/16	2.38	70	21	45-55	1.5-2.0 TR/100 lb. 100-133 kcal/kg
	Fresh Packed in Cheese or Butter Sauce	10 oz.	1½-1¾	3.8			85-110	
		40-48 oz.	2-½	5.35			140-180	
Baked Goods	Donuts-Glazed and Filled	½ Doz.	1-¾	3.5	70	21	35-45	.83 TR/100 lb. 55 kcal/kg
	Rolls - "Heat and Serve"	1 Doz.	1-½	3.8	80	26.5	35-45	.86 TR/100 lb. 57 kcal/kg
	Fruit Pies	10 oz.	1-¾	3.5	70	21	40-65	
	Pumpkin Pie	12 oz.	1-¾	3.5			90-110	
Prepared Foods	Pot Pies	8 oz.	1-9/16	3.97	70	21	90-110	.86 TR/100 lb.
	Meat Loaf Dinner	11 oz.	1-1/8	2.86	90	32	70-80	57 kcal/kg
Meat Products	Hamburger Patties	45 oz.	2-½	5.35	40	4.5	55-60	1.2 TR/100 lb. 80 kcal/kg
	Hamburger Patties	190 oz.	5	12.7			220-260	
	Sausage, Pork Link	16 oz.	1-¾	3.5			60	
Fish	Whiting 5 lb. Block	60 oz.	2-½	6.35	40	4.5	150-170	1.25 TR/100 lb. 83 kcal/kg
Dairy Products	Ice Cream	½ Gal.	3-½	8.9	22	-5.5	90-100	350 BTU/Gal. 23 kcal/liter
	Ice Cream	½ Gal.	5	12.7			140-160	

All temperatures and retention times are based on 0°F (-18°C) core hardness at discharge and -45°F (-43°C) plate temperature.

TR = Tons of Refrigeration



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