

Bottom Drop Tunnel

by DOHMEYER

In partnership with Dohmeyer, leading global manufacturer of cryogenic refrigeration systems for the food processing, pharmaceutical, aeronautic, plastics and steel industries, TOMCO₂ Systems offers a complete line of innovative Cryogenic Food Freezers and Chilling Solutions. Each freezer system is custom-designed to its customer's specific requirements

Dohmeyer's in-line cryogenic freezing Tunnels are commonly used to freeze all kinds of foods ranging from small diced products to larger whole muscle meat or packaged products. When the ceiling height in the production facility is limited, Dohmeyer provides a Bottom Drop Tunnel that is opened by lowering the bottom section of the tunnel using pneumatic bellows while the top part of the freezer stays in place.



The Process

Every Dohmeyer Tunnel is equipped with either liquid nitrogen or liquid carbon dioxide (CO₂) injection, depending upon the product and process requirements. The freezing action happens right inside the tunnel where the cryogenic gases are injected into an insulated cold zone as the food product passes through it.

Dohmeyer can recommend the best cryogen and injection set-up for various types of food products or processing constraints. There are two injection set-ups to choose from depending upon the temperature profile that is needed to freeze the food product: Isothermal or Counter-Current. Isothermal tunnels provide a uniform operating temperature throughout the cold zone while counter-current tunnels create a temperature gradient inside the tunnel by guiding the cold gases in the opposite direction to the product flow.

Features & Benefits

All Dohmeyer Tunnels are equipped with a standard, operator-friendly HMI touch screen and Siemens PLC software with recipe storage capabilities to ensure a consistent freezing result every time. In addition, Dohmeyer is able to provide specially-designed fan blades, based on its on-going research efforts, for different convection set-ups in order to increase the freezing rate of many types of food products while optimizing the operational efficiency of the cryogenic gases.

Liquid nitrogen and CO₂ deliver the ultimate cryogenic freezing power by minimizing any aroma, flavor, and dehydration losses to the food product. Because these cryogenic gases are inert, they also provide a protective atmosphere inside the freezing zone which prevents any oxidation of the food. As a result, the quality attributes of cryogenically-frozen food products are far superior to those same products frozen in a mechanical system.



General Specifications

- Standard, operator friendly, HMI control with recipe storage capabilities
- Achieves very low temperatures, down to -70°F (with LCO2) and down to -160°F and lower (with LIN)
- Easily adapted for every kind of inline freezing
- Easy access for cleaning and maintenance with an opening clearance of ca. 350 mm.
- No loss of food flavor, aroma, or weight
- Several customizable options

Usable Belt Width		28"	38"	50"	60"
Overall Tunnel Width (mm)		1570	1822	2130	2383
Name	Freezing Length	Belt Freezing Surface (m²)			
DOH-TUN-5200	4000	2,84	3,86	5,08	6,10
DOH-TUN-6200	5000	3,56	4,83	6,35	7,62
DOH-TUN-8200	7000	4,98	6,76	8,89	10,67
DOH-TUN-9200	8000	5,68	7,72	10,16	12,19
DOH-TUN-10200	9000	6,40	8,69	11,43	13,72
DOH-TUN-11200	10000	7,11	9,65	12,70	15,24
DOH-TUN-13200	12000	8,53	11,58	15,24	18,29
DOH-TUN-14200	13000	9,25	12,55	16,51	19,81
DOH-TUN-16200	15000	10,67	14,48	19,05	22,86
DOH-TUN-17200	16000	11,38	15,44	20,32	24,38
DOH-TUN-18200	17000	12,09	16,41	21,59	25,91
DOH-TUN-21200	20000	14,22	19,30	25,40	30,48

