

## BUSE-Freezing equipment ► custom-made and efficient

### Why cryogenic freezing and cooling?

Water is the main component of a lot of foodstuffs. The challenge of efficient freezing is to obtain **small water ice crystals at very high freezing rates**. This is the key for optimum preservation of frozen food quality.

- **Slow freezing** big ice crystals damage the cell walls dripping losses and reduction in food quality regarding appearance, consistence and taste
- **High freezing rate** small crystals, inside and between the cells cell walls are not damaged, no dripping losses, preservation of high product quality



Cryogenic freezing (also called shock freezing) using **nitrogen and carbon dioxide**, as cryogenic liquefied gases, is at present the most efficient freezing technology for preservation of foodstuffs concerning durability and quality.

Liquid Nitrogen (N <sub>2</sub> )	Carbon dioxide (CO <sub>2</sub> )
<ul style="list-style-type: none"> <li>○ <b>-195,9° C</b> boiling point at 1 bar</li> </ul>	<ul style="list-style-type: none"> <li>○ <b>-78,4° C</b> sublimation temperature at 1 bar</li> </ul>
<ul style="list-style-type: none"> <li>○ Nitrogen is colourless and odourless, non combustible, nontoxic, inert, 78 Vol. % in the atmosphere</li> </ul>	<ul style="list-style-type: none"> <li>○ Carbon dioxide is colourless, non combustible, odourless and tasteless, only 0,03 Vol. % in the atmosphere</li> </ul>

### Why BUSE equipment ?

With the high performance cryogenic freezers from BUSE, the refrigerants nitrogen and carbon dioxide are used in direct contact with the goods to be frozen. The optimized design, use of high quality materials and modern control systems ensure highest freezing rates, excellent preservation of foodstuffs and economic use of utilities.

All BUSE freezers comply with the requirements of the food manufacturing industry and exceed their hygienic standards. Additionally, our plant variety is continually being extended for individual customer developments and special carbon dioxide and nitrogen applications.

#### Cryogenic freezers are mainly composed of:

- Insulated housing
- Gas injection system
- Fans for cold gas circulation
- Off gas exhaust system
- Belt drive system (continuous freezers)

#### Types

- SF - Cabinet freezer (Batch freezer)
- LF-H - Linear freezer (Tunel freezer)
- EF-H - Tripledecker freezer
- WF - Spiral freezer

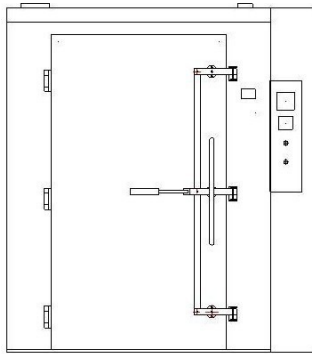
#### Range of application

- Meat products
- Convenience food
- Fish and seafood
- Bakery goods
- Pasta
- Vegetables
- Fruits
- Dairy - products
- Steel- and pharmacy products

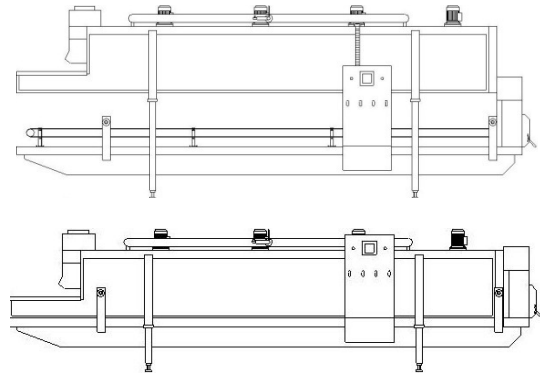
#### Benefits

- Modularly system ensures adaptation to the customer needs regarding freezing capacity and capex
- Manageable investment costs
- High production rates and small place requirements
- Flexible solutions regarding foodstuffs and production rates
- High quality of equipment
- Highest freezing rates and low dehydration
- Optimized consumption of Nitrogen and Carbon Dioxide

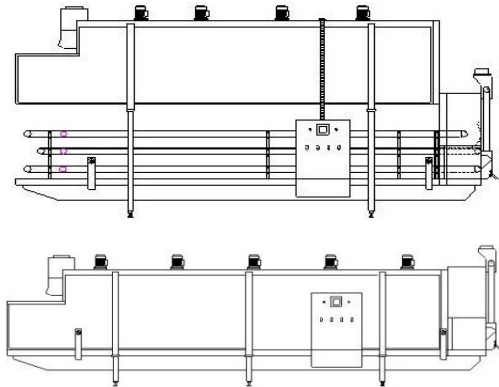
## Cryogenic Freezer Types



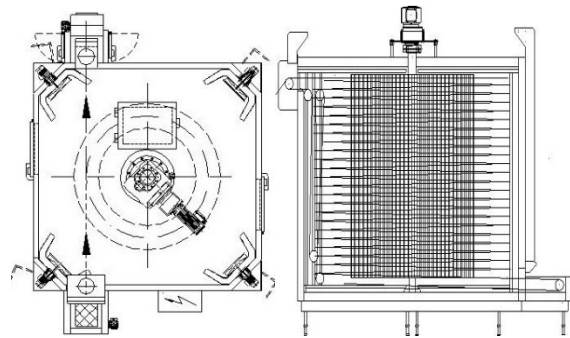
Cabinet freezer SF (Batch freezer)



Linear freezer LF-H (Tunnel freezer)



Tripledecker freezer EF-H



Spiral freezer WF (O)

**BUSE Gastek – competence in manufacturing of freezing equipment, handling of storage tanks for cryogenic gases and extensive range of services.**

FREEZING TECHNOLOGIES	STORAGE TANKS FOR INDUSTRIAL GASES
<ul style="list-style-type: none"> <li>○ Design and construction of cryogenic freezers</li> <li>○ Assembling and disassembling</li> <li>○ Competent after-sales-service</li> <li>○ Spare parts service</li> <li>○ Conversion works (also on-site conversions)</li> <li>○ Inspection and maintenance service</li> <li>○ Refurbishment and in-house storage</li> </ul>	<ul style="list-style-type: none"> <li>○ Storage and complete refurbishment of tanks</li> <li>○ Detection and repairing of vacuum leaks (Vacuum insulated tanks)</li> <li>○ Periodic inspections</li> <li>○ Sand blasting and painting works</li> <li>○ Qualified welding and soldering</li> <li>○ HP0 - Certified</li> </ul>