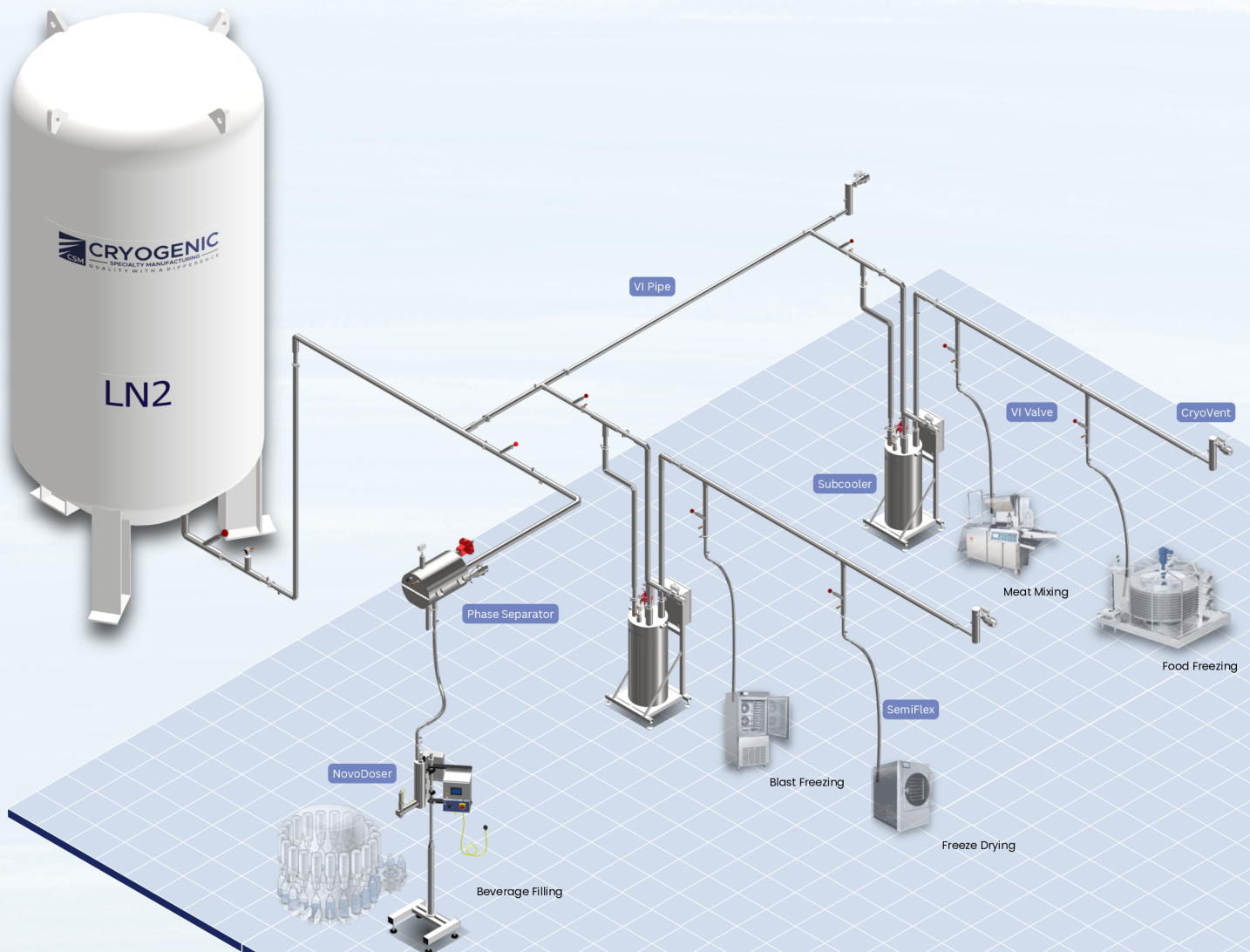


LN2 Solutions in Life Sciences Industry



Dosing

LN₂ dosing is the only viable option to achieve packaging light-weighting, reducing material usage while maintaining structural integrity.

NovoDoser



Container Light-Weighting

Reduce packaging cost and environmental carbon footprint.



Container Rigidity

Enhance bottle or can's strength and eliminate paneling, especially in hot filling process.



Oxygen Exclusion

Reduce residual oxygen in product headspace to prevent oxidation to the product.



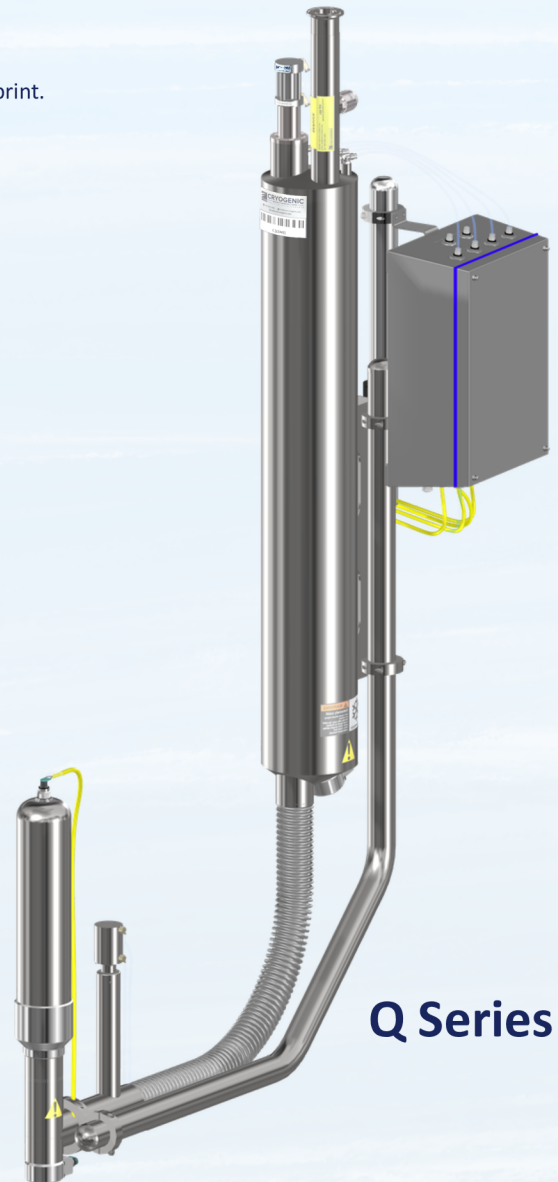
Extended Product Shelf Life

LN₂ dosing in product packaging can extend product shelf life longer.

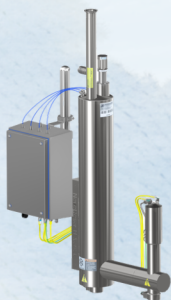


Nitro-Infused Beverage

Infusing the beverage with nitrogen provides a luxurious, thick, and creamy texture.



Q Series



H Series



L Series



P Series



Freezing

Cryogenic freezing offers extremely low temperatures (-196°C) and faster freezing rates compared to traditional mechanical freezers, improving product quality and throughput.

Subcooler



3500 kg/hr

Subcooler improves cryogenic freezing efficiency while reducing LN2 usage by 30% in food and biopharma industries

- Efficient chilling of the product in the mixer and freezing tunnel
- Consistent batch temperatures at minimal operator involvement

Individual Quick Freezing (IQF)

Texture, flavor, and nutrients preservation for berries, shrimp, diced vegetables and meat at dehydration loss <50%.



Freeze Forming

Mochi ice cream, multilayered deserts, etc. with consistent portioning, weight and shape.



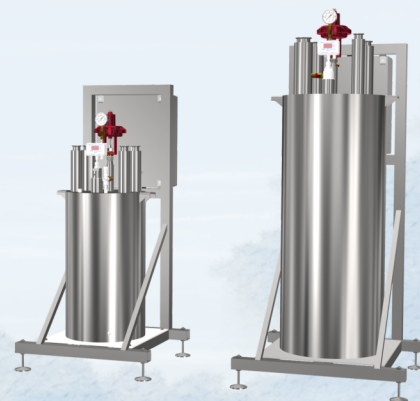
Cryogenic Lyophilization

Unmatched stability and structural preservation of temperature-sensitive biologics, e.g. mRNA vaccines, proteins, and cell therapies



Cryogenic Blast Freezing

Steep freezing temperature curve to preserve biological potency for live attenuated vaccines, enzymes, and monoclonal antibodies



500 kg/hr

1000 kg/hr

Chilling

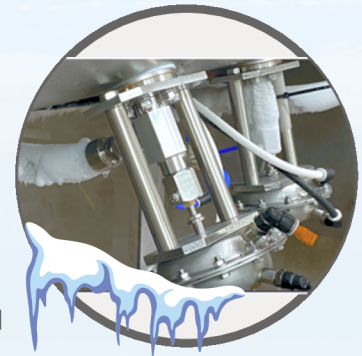
LN₂ dosing provides more precise temperature control in meat mixing and blending than traditional methods using dry ice or mechanical freezers. Additionally, cryogenic chilling is more capable of reaching and maintaining blending temperatures below -25°C and does so with greater ease than conventional methods.

LN₂ Dosing Valve MX-500



New Gen

- Super Insulated
- Zero dead volume
- SIP & CIP ready
- SS316L



Traditional

- Uninsulated

Meat Mixer & Blender



Why Super Insulation Matters



Frost-free and hygienic compliance



Reduce boil-off loss by 90% and massive operation cost



Increased chilling efficiency by 30% due to lower vapor content in liquid nitrogen

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