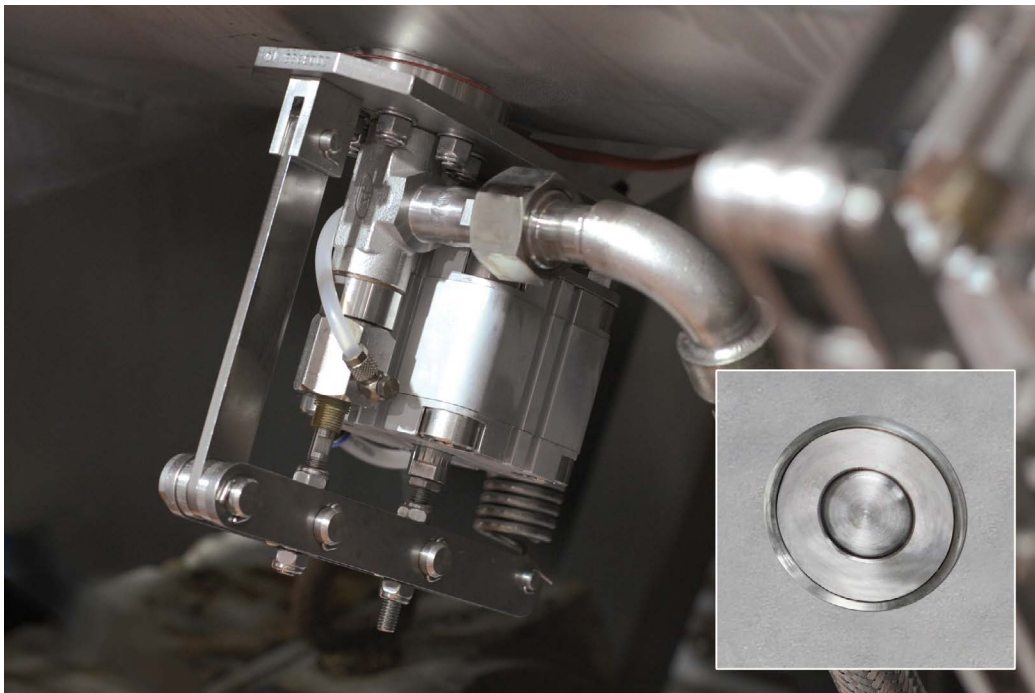


KRYOJECTOR® Bottom Injectors.

The innovative cooling system.



KRYOJECTOR® installation

General

The KRYOJECTOR® bottom injector from Messer is a patented cryogenic bottom injection system working with either liquid nitrogen or liquid carbon dioxide. Wherever fast and efficient chilling without additional process equipment is needed, the KRYOJECTOR injector is the answer. It can be installed in new or existing process equipment, such as mixers, blenders and kettles. It requires minimal space, and cools the product directly. This leads to high product quality due to low phase separation, low product stress and reduced aroma losses, as a result of quick cooling. The system maximizes hygiene as the innovative design seals against the blender wall and minimizes debris collection and entrapment.

The KRYOJECTOR works by injecting a defined amount of cryogen directly into the product mass. The cryogen evaporates or sublimates in contact with the product,

absorbing the heat from it, and the cold gas then continues to cool the product, as it passes through to the top of the process container.

Typical applications

KRYOJECTOR injectors can be used for a wide product range requiring fast cooling, such as:

- Meat and vegetable products prior to forming
- Soups
- Sauces
- Paste and pulp products
- Baby food
- Purees

These are just some of the possible applications. If you would like to know whether the KRYOJECTOR injector suits your application, please contact us.

Hygiene

The KRYOJECTOR injector has been designed to seal flush against the blender wall to eliminate particle entrapment, which meets the highest hygiene requirements:

- All product zone surfaces are smooth
- Dead space avoided
- All surfaces in contact with the product are self-emptying or self-draining

Features

- High efficiency up to 98 percent
- Dual cryogen usability
- Positive shut off at the inner wall of blender/mixer
- Prevention of product freeze around injection opening
- High capacity
- Inhibition of microorganism growth due to fast cooling of warm products
- Reduction of aroma losses
- Can be installed in existing or new equipment
- Very low space required for installation
- Is cleaned with vessel surface; no extra cleaning needed

Technical data

Dimensions H x L x W	9.45 x 8.66 x 5.9 inch
Performance/tank pressure	N ₂ approx. 7.7 lb/min at 43.5 psi
	CO ₂ approx. 30.9 lb/min at 232 psi



Proper temperature control is apparent in a cleaner release from forming equipment and in sharper edges of burgers, as shown at right



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