

# Combo Chiller.

For improved product quality and safety.



Rapid chilling provided by the Messer combo chiller inhibits bacterial growth that can compromise food quality and safety. The combo chiller supports various types of bins including cardboard and plastic (pictured).

## Benefits

- Accurate and consistent temperature profiles throughout the load of product result in improved product quality, fewer product returns, and minimal shrink loss.
- Uniform product distribution leads to proper final temperatures, therefore eliminating the need for further chilling and also saving on storage space.
- Rapid chilling promotes product quality and safety, while further increasing throughput.
- Efficient use of CO<sub>2</sub> lowers operating costs.
- Built-in exhaust plenum improves worker safety.
- Rapid payback...usually in 6-12 months.

## Key features

- Accurate and consistent temperature. A patented control system ensures accurate, consistent temperatures with variations of 2-3 °F or less within a single combo bin and across multiple combo bins. Consistency in temperature improves product quality by eliminating hot and cold spots, saving costs through reduced product returns, minimizing product shrink loss, and improving downstream processing efficiencies.
- Uniform product distribution. Meat and poultry are automatically distributed evenly throughout the bin. This

ensures accurate and consistent bin weight, thus ensuring the product is chilled to its final desired temperature. Furthermore, this reduces the time required for the combo bins to equilibrate in holding freezers, thus resulting in increased production, distribution, and available cold storage space.

- Rapid chilling. Carbon dioxide snow mixes thoroughly with the meat to provide rapid cooling. The fine snow provides more complete contact and more effective heat transfer than dry ice pellets, resulting in a more consistent temperature while also preventing bacterial growth that can compromise food quality and safety.
- Lower operating costs. Operating costs for the combo chiller are lower than conventional dry ice pellet methods. Average carbon dioxide consumption is only 0.10 to 0.15 pounds of liquid per pound of product for a 10-15 °F drop in temperature.
- Improved plant safety. A built-in exhaust plenum removes carbon dioxide vapors from the processing area, ensuring adherence to safety standards and a healthy work environment.
- Automatic operation. Automatic control of the chilling operation eliminates the labor, handling, and storage issues associated with dry ice pellets.

## Operation

After the combo bin is rolled into place within the Messer combo chiller, product enters the system and is placed on a slotted turntable equipped with wiper arms. The turntable moves slowly and evenly distributes the meat throughout the combo bin.

At the same time, a bank of specially designed snow horns sweeps over the combo bin. The horns convert liquid carbon dioxide into fine snow, which is evenly distributed over the meat inside the bin.

A proprietary control system adjusts the carbon dioxide flow to accommodate process variations such as incoming meat temperature, desired temperature, and product fill rate. Feedback to the controller from a weigh scale ensures that just the right amount of snow is applied to each bin. Depending on the production rate, operator intervention may not be required.

Once the bin is filled with snow, the combo bin is removed and placed in cold storage or sent to a downstream processing area. Messer provides a total system solution including the combo chiller and reliable, cost-effective supply of carbon dioxide cryogen.

## Messer: The food chilling experts

We created the Combo Chiller to meet industry demand for more consistent temperatures in chilling meat and poultry for packaging and shipping.

A Messer chilling specialist can review your operations and recommend the most efficient, cost-effective solution for your application. For more information, contact Messer today.

## Specifications

Materials of Construction	Type 304 stainless steel for cabinet UHMW polyethylene turntable
External Dimensions	5'11"L x 4'6"W x 7'8"H
Internal Dimensions	4'6"L x 4'3"W x 4'2"H
Power Requirements	3 phase, 460V/20A
Weight	600 lb
Maximum Capacity	15,000 lb per hr

The Messer combo chiller is USDA-approved for chilling of meat and poultry.



### Messer Americas

200 Somerset Corporate Blvd  
Suite 7000  
Bridgewater, NJ 08807  
Phone: 1-800-755-9277  
sales@messer-us.com  
www.messer-us.com



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