



Counterflow Cooler

ONECPM.COM

Counterflow coolers have been an industry standard for over 20 years in pelleted feed. In the last 10 years they have also become popular in many other applications for cooling of granular products and meal.



- Compact design
- Meash feed cooling
- Drying and cooling
- High capacity

The advantages in footprint, energy efficiency, maintenance costs and investment costs have made this type of cooler the preferred choice for nearly every user of pellet mills, flaking mills, expanders, extruders, heat treatment systems, conditioners, etc.

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Counterflow **Theory**

Product Flow

For granular products, Counterflow coolers typically operate in a continuous, First In First Out mode with the discharge system slowly discharging product into the hopper, based on signals received from a product sensor in the bin walls. However, for meal type products it is necessary to apply fluidization of the product bed in order to get sufficient air to flow through. As a result it is better to cool in batch mode, usually in two steps, to allow each batch to be fluidized for a pre-set period of time. Discharging is therefore no longer driven by the product sensor, but by timers.

Simple Excellence

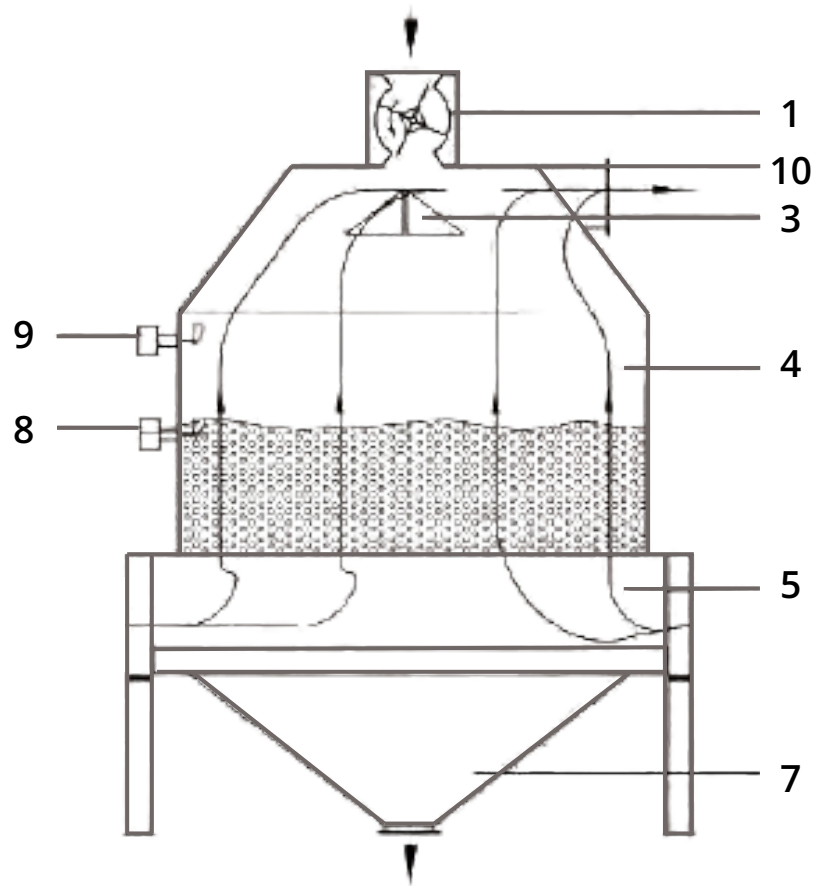
The CPM counterflow cooler is the most reliable and strong counterflow cooler available. With a wide range of different discharge systems, grid sizes, bin wall heights, cyclones and air fans, there is a customized solution available for every type of product and every cooling requirement. All CPM Counterflow coolers are built to high specifications. Cooler hood and bin walls are always in stainless steel to prolong lifetime and guarantee clean operation. Air systems can be designed to meet your specific cooling needs.

Counterflow **Advantages:**

- High hygienic standards
- High energy efficiency
- Low maintenance
- Low operating costs
- Low investment
- Limited space requirement
- Easy installation
- Easy operation
- Easy cleaning
- Long lifetime

Counterflow Theory

PARTS & AIRFLOW



The Principle of Operation of the Counterflow Cooler

The warm product enters the bin (4) through the inlet rotary valve (1). Underneath the inlet rotary valve a distributor (3) ensures even distribution of product in the cooler. The product is being cooled in the bin by means of an air flow, which enters the bin through the discharge gate (5) and leaves the bin through the air outlet (10). Product layer height is controlled by a level sensor (8), which is adjustable in height. The level sensor ensures that the product layer is kept at a predetermined height. As soon as product activates the level sensor the discharger (5) is operated and product is discharged through the hopper (7). Discharging stops as soon as the product gets below the level sensor. In order to prevent overflow, the cooler has been provided with an overflow sensor (9), which stops product supply to the cooler.

Counterflow

Characteristics

Maintenance

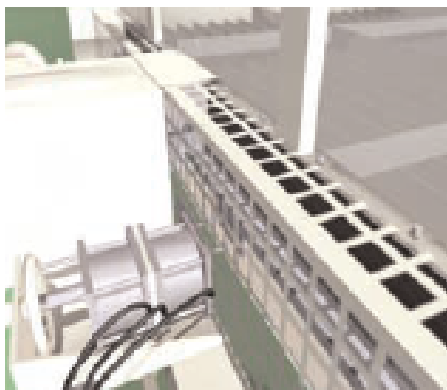
One of biggest selling points of all CPM counterflow coolers is the fact that they run reliably with an absolute minimum of maintenance. There are just a few electrical items to be connected and no wear parts.

Popular Options

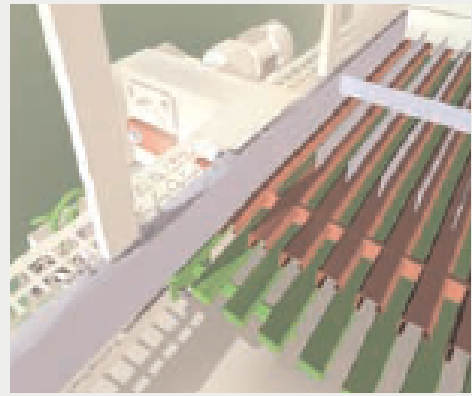
Intermediate cooling deck to buffer product temporarily when switching to a new recipe. This avoids loss of time and capacity during a change over.

Air flow control valve to automatically stabilize air volume in the cooler, independent of fluctuations in pressure drop.

Clam shell inlet valve to temporarily store small quantities of fat sprayed product to allow the fat to be absorbed by the hot product before cooling begins.



Air
operated
cleaning



Triple discharge grid



Swivel valve discharge



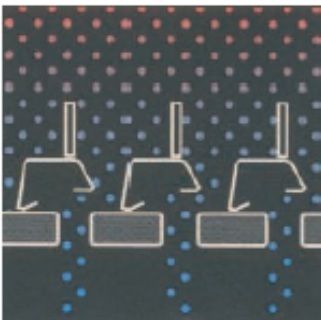
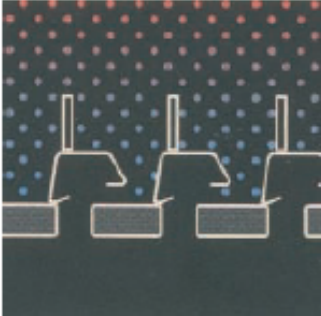
Discharge drive



Rotating distributor

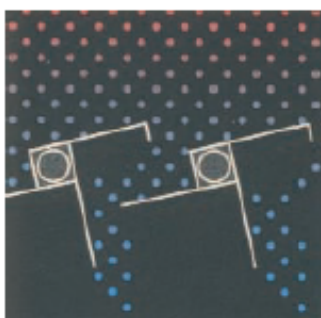
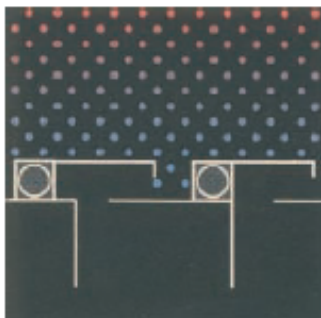
Counterflow

Discharge Systems



The Triple Grid Discharger is typically used for easy-flowing, pelleted products. This cooler is the ultimate in simplicity, there is just about nothing that can go wrong. Product Flow is First In First Out, with gradual discharge into the hopper. This system allows easy adjustment to handle pellet sizes between 3 and 10 mm (or 3 and 18 mm with a special grid). The pneumatic system for clean out ensures a totally empty cooler at the end of each production run.

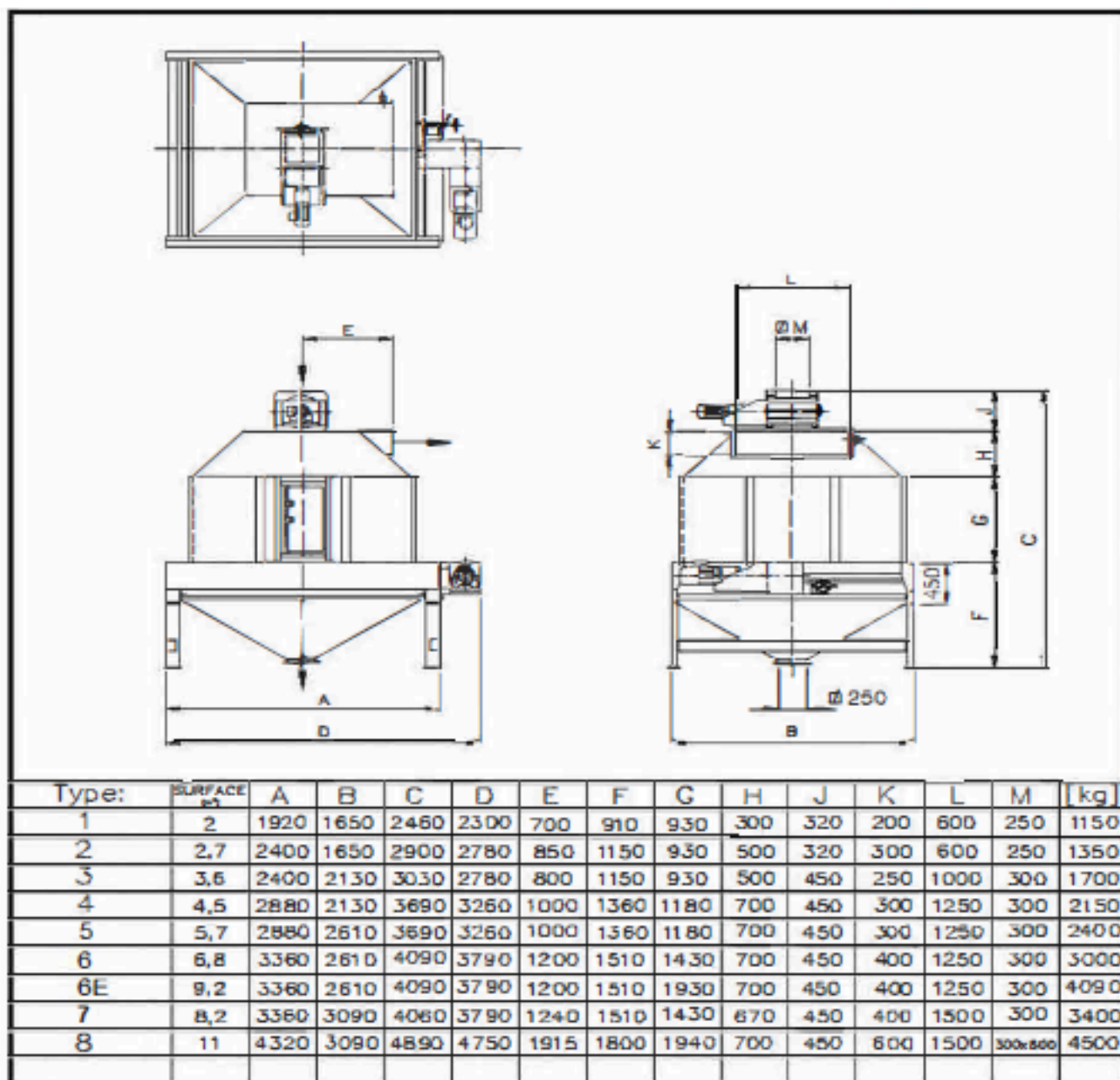
The Batch Discharger is used to dump its entire product bed in one movement. Used typically to cool meal or mash type products, its opening sequence is timer driven.



The Swivel Valve Discharger can be applied to nearly every type of product, including those that have very difficult flowing characteristics. Bridging and blocking cannot occur with this discharger. It also conforms with the highest sanitary requirements. Here also, product flow is First In First Out. The swivel valve discharge system can handle everything from fine meal up to big lumps. It is used for cooling pellets, lumps, chips, flakes, expanded products, extruded products, meal and many other granular products. The integral emptying system ensures a totally empty cooler at the end of each batch.

Counterflow

Specifications



From the food you eat to the fuels you require, CPM plays an important role in building a better world. Our experienced team and family of trusted brands are working together to make our planet a better place to live.

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