



# Combi In-Line Air Chilling System™

In Combi Chilling, cooling of eviscerated products happens in two phases. First, by means of several short dips in temperature controlled cold water tanks. Second, the cold water dips are followed with air chilling.

At the end of the eviscerating line the carcasses have an average temperature of approximately 42 degrees Centigrade. This temperature has to be lowered as soon as possible to 4 degrees Centigrade to ensure the quality of the meat and to prevent growth of bacteria. With a conventional air chilling system and a carcass weight of 1.5 kg this takes approximately 100 minutes. With the TopKip Combi chilling system this only takes about 67 minutes.

The water filled tanks are positioned in the chill room. A separate cooling system ensures that the water in every individual tank, using integrated cooling walls inside the tanks, has the desired temperature.

During the Combi process the carcasses are alternately chilled by water and air in order to get the best cooling (heat exchange) results and product quality. A well balanced custom made air circulation system, fitted with evaporators and fans, controls the air temperature in the chill room at a constant 0°C.

The total overall immersion time of the carcasses in the Combi chill tanks is about 4 minutes.

TopKip has created specially designed water tanks, including the positioning of the cooling walls. Combined with a controlled water supply it has created a clean process.

The moving carcasses, the overflow possibilities and incline of the tanks ensure a constant counter current of water that prevents contamination of water and products.

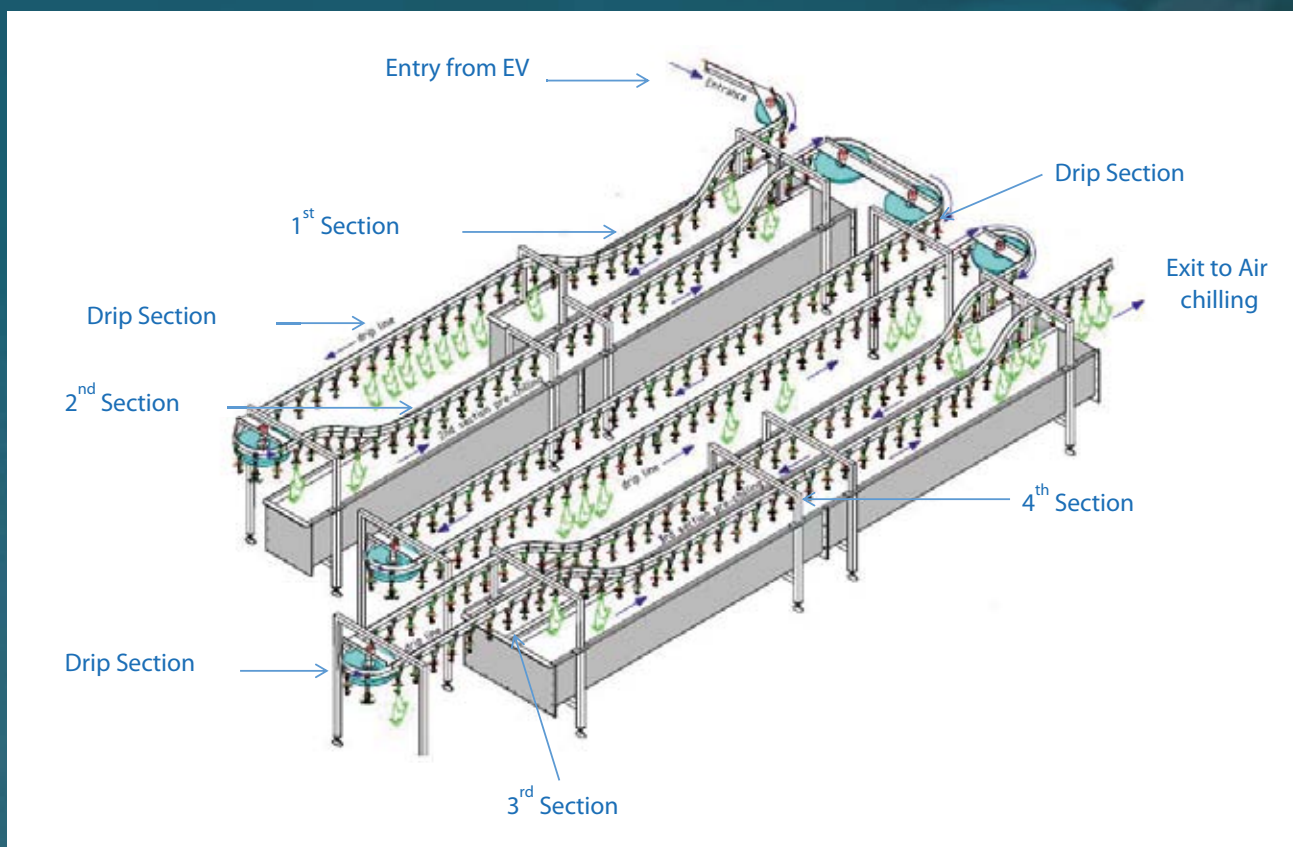
In order to chill the broilers with this technique, approximately 0.5 ltr of water is needed per bird. An added advantage of this method is the extra rinsing cycle the carcasses are subject to at the end of the evisceration line.

By adding the TopKip Combi In-Line Air Chilling system to an existing Air Chill line, because of the compact setup and the chilling method, products can be chilled down in a shorter time at a relatively small floor space. The system creates an increased production capacity, of up to 50% , without any major structural adaptations necessary to the building.



## Advantages of the TopKip Combi In-Line Air Chilling System™

- Significant savings on water (up to 95 %) comparing with Spin Chilling
- Saving on labor, In-line system
- Controllable moisture pick-up possible, if required
- High Chilling Efficiency (up to 50% faster than air chilling alone)
- Excellent bacteriological characteristics of poultry carcasses
- Significant savings on energy (up to 45 %)
- Very clean and attractive product
- Superior shelf life
- Compatible with all overhead conveyor systems
- Suitable for decontamination
- No carcass damage
- Custom made, easy to integrate within existing air chilling lines and rooms
- 100% tracking and tracing of individual carcasses
- No weight loss
- Improve cut-up processing and yield
- Minimizing of de-frosting cycles
- Improve chilling operation
- Proven principle, more than 75 systems installed!



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