Travaglini

SYSTEMS FOR
SALTING, CURING, DRYING AND AGEING OF RAW HAM

Since 1950, **Travaglini S.p.A. has been a leading company in the development of equipment for salting, curing, drying, pre-ageing and ageing rooms for raw ham, thanks to the experience acquired through cooperation with the world's most important cured ham producers**.

Our technologies, along with the skills of our experts help support the customer in solving any problem related to the stages of producing raw ham. Specifically:

Salting room

The salting system is composed by ceiling mounted air exchangers and convectors made of ABS with conveyors that contain a hot water coil, installed in the centre or on the side walls of the room.
As an alternative to this, however, there are some installations where it is possible to utilize a ventilated salting room, with special circular ducts and an air treatment unit.
Temperature and relative humidity control are essential for proper absorption of sodium chloride.
The salting period varies from 10 to 21 days according to the weight of the raw hams.

Pre-curing room

We have developed a revolutionary ventilation system for this equipment: the air is distributed into the room through two ducts mounted on the side walls, complete with conical nozzles, properly dimensioned for this purpose. A linear actuator and damper system continuously regulate flow of air into the two inlet ducts in order to obtain a precise flow of air that moves constantly within the room and ensures a better drying of the critical "best

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end" portion of the meat. It is also possible to add intermediate stops and to decide their duration. Suction ducts are mounted to the ceiling where air flow is controlled by micro-adjusting valves. This kind of system is designed to operate at a low relative humidity, to obtain a high dehydration of the ham at low temperature, thus preventing bacteria from developing and allowing the salt to penetrate into the heart of the raw ham.
This is the most delicate and important phase. The pre-curing period varies from 2 to 3 weeks according to the type of ham.

Curing room

This kind of equipment is specifically designed to operate at low temperature and relative humidity, allowing a gradual dehydration of the product and reducing the risk of crust formation.
The curing period varies from 5 to 12 weeks according to the type of ham.

Drying room

This stage varies from 1 to 2 weeks and allows to increase the internal temperature of the product in order to begin enzymatic processes.

Pre-ageing room

This stage varies from 3 to 12 weeks and allows the product to be further dehydrated in order to guarantee that it can be safely stored.

Ageing room

The ageing equipment is designed to maintain temperature and control of relative humidity at such a level in order to allow the product to develop its typical flavour.

Computerized system

Our computerized control and management system, in addition to monitoring temperature and relative humidity, allows:
- to set predefined programmes;
- to control the fluid temperature, optimizing shrinkage;
- to record the graphical trending of different variables and display on a single screen (temperature, relative humidity, etc.);
- to verify the exact progression of the entire maturing process.

Furthermore, to allow for various functions to be centrally supervised, we have designed a software program for this purpose that allows to monitor and manage system alarms, to collect and graphically displayed the rooms' individual data, remote programming, remote support, and automatic centralised control for better management of energy consumption.

Energy savings

Heat recovery:
our system allows to recover the total condensation heat transferred during the refrigeration cycle. Therefore, when the post-heating demand coincides with requirement for cold, there is hardly any need to use external heating sources.
Furthermore, hot water around 40–45°C can be produced with a desuperheater (optionally available) which can be used for other processing systems as well as other plant needs.

Enthalpy:
the enthalpy system utilizes the dehumidifying power of outside air for as long as possible. Our system is based on algorithms that allow to use outside air even when one of the specific values (temperature and relative humidity) seems far from the required values.

Economizer:
in systems with an independent refrigeration unit, there is a subcooling system that guarantees a refrigeration capacity that is 15–18% greater than the absorbed electrical potential.

High efficiency motors (IE2–IE3):
increase the system's output, reducing electrical consumption.

Inverter:
frequency regulators, installed on the motor of centrifugal fans and/or compressors, that increase or reduce their rpm in order to improve their efficiency if process and loading conditions change.

Direct coupling motor/fan:
this particular technical solution, combined with the use of an inverter, allows for a reduction in the system's electrical consumption, optimizing its regulation.

Modulation of cooling and heating valves:
to improve system performance in relation to the actual needs of the product during the various phases of maturation maturing.

Hot gas defrost system:
allows to defrost the cooling coil better and more quickly, which consequently saves energy.

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