



Treatment Units

HOT / COLD BREAK

Gemina[®]

www.gemina.es

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HOW IT WORKS

The breaking stage is very important in the processing of tomatoes, so much so that it's considered essential to choose the type of tomato to be produced. In this stage the tomatoes are heated very quickly.

The tomato paste can be processed either as **Hot Break** or **Cold Break**.

GÉMINA Hot/Cold Break treatment units process tomato paste or concentrate guaranteeing the total or partial deactivation of pectolitic enzymes, thus allowing the preservation of pectine which will give the product a bigger consistency.

Basically, the breaking process is like cooking the tomatoes, but done through a process which is completely monitored and controlled by temperature sensors.

ADVANTAGES

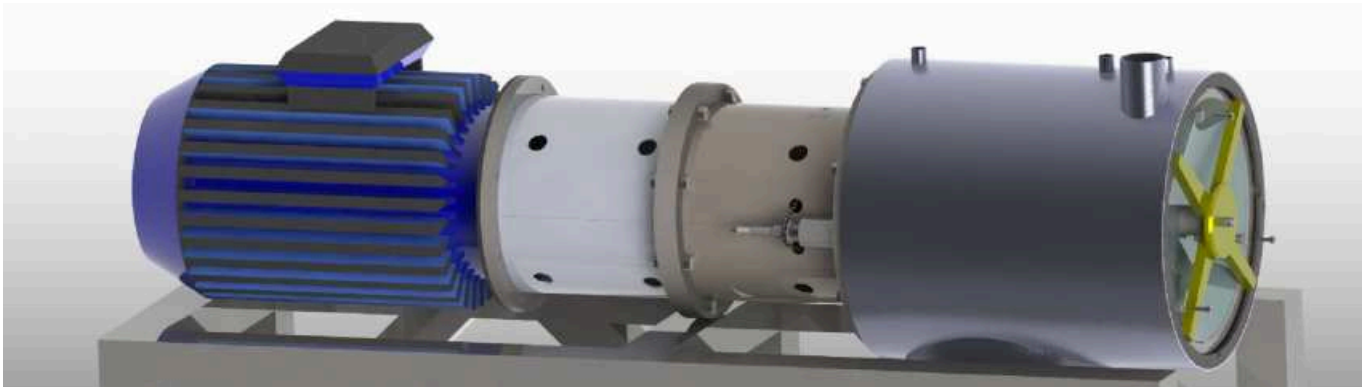
- Significantly reduces the syneresis phenomenon in the final product.
- High increase in pectins, viscosity and consistency.
- Automatic level and temperature control
- Higher performance in juice extraction.
- The plant can switch between the **Hot/Cold Break** according to the needs.
- Extensive recirculation of the product.

HOT BREAK

- Recommended for high viscosity products, such as sauces, ketchup, puree and the like.
- Completely deactivates enzymatic activity of pectins and increases the consistency and viscosity of the mixture.
- -Deactivation temperature ranges between 90 °C and 98.8 °C.
- This temperature is reached in a short period of time, resulting in an instant increase of temperature, from room temperature to breaking enzymatic deactivation temperature.

COLD BREAK

- Recommended for tomato juices and low viscosity sauces.
- The final product is less viscous, with low pectin content and excellent organoleptic characteristics.
- Perfect preservation of tomato flavor.
- Thermic treatment is carried out at temperature ranging between 60 y 70 °C (65.5 °C).
- The main difference between **Cold** and **Hot Break** lies in that **Cold Break** technology achieves a partial enzymatic deactivation whereas **Hot Break** produces a total enzymatic deactivation.



WHY THIS DIFFERENCE BETWEEN HB AND CB?

It has to do with enzymes polymethylesterase, polygalacturonase and lipoxygenase, which decompose a chemical substance known as pectin.

Pectins are naturally occurring compounds which cause the joining of tomato cells.

In the **Hot Break** process, these pectic enzymes are deactivated, inhibiting the decomposition of pectins, thus creating a more viscous product.

In the **Cold Break** process, the polymethylesterase and the polygalacturonase enzymes are not deactivated, and this is a disadvantage for the viscosity but an advantage for the flavor. The obtained product is, therefore, less viscous than that obtained with the **Hot Break** technology.



HOT/COLD BREAK FOR TOMATO

Model	Yield (litres/hour)	Product	System	Thrust	Recirculated Flow	Heating medium	Control
HB-T-/10000-a	10000	Tomato	Tubular vertical	Centrifuge pump	100 m ³	Steam	Automatic
HB-T-/15000-a	15000	Tomato	Tubular vertical	Centrifuge pump	150 m ³	Steam	Automatic
HB-T-/20000-a	20000	Tomato	Tubular vertical	Centrifuge pump	200 m ³	Steam	Automatic
HB-T-/30000-a	30000	Tomato	Tubular vertical	Centrifuge pump	300 m ³	Steam	Automatic

GÉMINA designs any custom model based on the needs required by the client.

MachinePoint®

Food Technologies

MACHINEPOINT FOOD TECHNOLOGIES was created as a result of a joint-venture between **MACHINEPOINT GROUP** and **GÉMINA**.

MACHINEPOINT FOOD TECHNOLOGIES designs, manufactures and integrates lines, equipment and processes for the food industry, more specifically for the beverage processors, the dairy industry and processors of fruits and vegetables.

MACHINEPOINT FOOD TECHNOLOGIES belongs to an international group specialized in industrial equipment for plastic, packaging and food industries.

The group is headquartered in Spain (Valladolid) and has sales offices in Turkey, Mexico, France, India and North Africa. The engineering center is also located in Spain (Murcia). It is at the engineering center where we manufacture our equipment and have our R & D + I department.

GEMINA PROCESOS ALIMENTARIOS S.L. is a leading equipment manufacturer that provides innovative solutions for the food industry. It has over 25 years experience in designing, manufacturing, assembling, automating and implementing lines and processes.

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