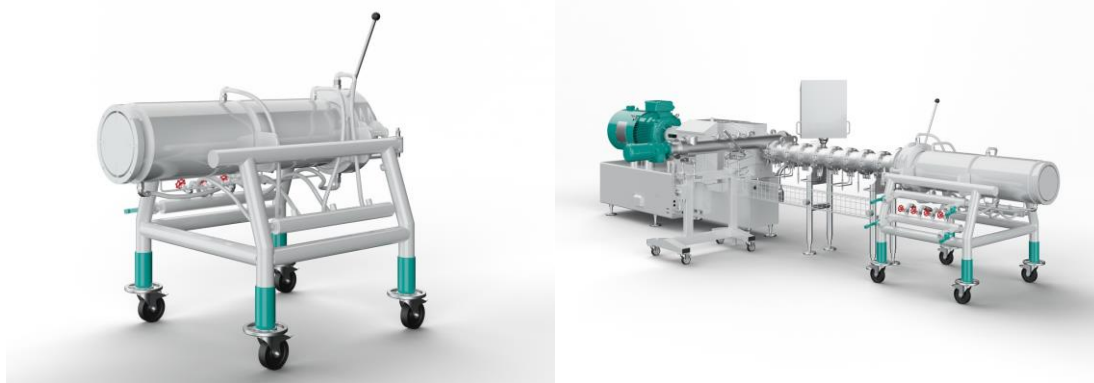


1,000 kilogrammes of protein per hour – Bühler increases the performance of its cooling die for extruding meat substitutes

Plant-based nutrition is continuing to boom and is offering producers enormous opportunities to sell tasty meat or fish substitute products with structures and textures similar to those of their original chicken, fish or beef pendants. To accomplish this, Bühler has developed the PolyCool 1000. In combination with an extruder, the high-performance cooling die can now also produce wet-textured proteins on an industrial scale based on a broad range of raw materials.



The PolyCool 1000 high-performance cooling die (left) in combination with an extruder (right) for producing wet-textured proteins. (Photos: © Bühler)

For increased production capacities

Bühler has been helping food manufacturers to develop innovative products "that offer attractive alternatives to animal flesh" for a number of years, says Christoph Vogel, Head of Market Segment Proteins & Ingredients. "This also includes products that are similar to meat in terms of their fibre structure, colour, texture and taste."

Production is carried out by combining an extruder with a cooling die. Customers can choose between the PolyCool 500 and the PolyCool 50 for this. While the former produces around 500 kilogrammes per hour, the latter is suitable for research purposes and for use in product development thanks to its throughput of 50 kilogrammes per hour. This low throughput enables various recipes and process parameters to be tested without having to process high quantities of raw materials.

PolyCool 1000 can be used to achieve a high production capacity, "which reduces costs and makes meat substitute products more affordable", says Vogel. "The market is shifting due to consumers' increasing interest in health, sustainability and ethical concerns. An increasingly plant-based diet is booming, and PolyCool 1000 will help food manufacturers to seize this opportunity."



Extrusion is a versatile process for manufacturing tasty substitute products with structures and textures that are similar to the animal-based originals. The photo shows a wet-textured product made of pumpkin. (Photo: © Bühler)

Wet-textured proteins from the cooling die

In combination with an extruder, the PolyCool 1000 high-performance cooling die can produce wet-textured proteins based on a broad range of raw materials. These include soy, pulses, oil seeds, reutilised products from secondary streams, such as spent grains from brewing, or ingredients such as microalgae. The die has a throughput of up to 1,000 kilograms per hour and produces products with different shapes and structures. Principle: the individual cooling circuits can be controlled independently of one another in order to determine the final characteristics of the product.

The high-performance cooling die can withstand a pressure of up to 50 bar and cools the molten mass from around 150 degrees Celsius to below the boiling point. With their electropolished surface, both the extruder and the cooling die are easy to clean and meet all hygienic design standards for maximum food safety. PolyCool 1000 is easy to assemble and dismantle.

Further information and contact

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