

Comparison between tumbling and massaging

Massage technology allows for higher protein activation and thus improved product yields

In the production of cooked cured goods, the first step in the process involves treating the cuts with brine after selecting the initial material. In most cases, the brine is inserted by means of brine injectors.

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Brine injection involves injecting the required amount of brine very precisely into the cuts. Some other products undergo brining, which means the pieces of meat are submerged in the required amount of brine where they then need time to absorb it. In both procedures, the subsequent processing of the muscle fiber structure is crucial to the quality of the final product. The effectiveness of the water retention and protein activation is determined here and, concomitantly, the quality of the slice cohesion. In industrial production, two processes are used for this stage of production.

In the case of the commonly known tumbler technology, a big drum rotates horizontally on a guide. Flat baffles lying on the inner walls of the container cause the pieces of meat to fall and produce a gentle movement. This movement is also frequently referred to as "rumbling".

The massage process takes a completely different approach. Here the container has a fixed construction with an internal, rotating shaft. Large, spiral-shaped paddles are mounted on this shaft and move the product around its axis. Since these paddles move within the meat mass and, unlike the tumbler, there is not just contact between the product and unit at the outer edge, each individual muscle is actively touched. This principle of the vacuum massage system was already introduced and patented in 1986 by Dr. Iyimen, the owner of MYAC Maschinenbau AG. As a result of the close cooperation with Helmut Schröder, the patent was later taken over by Schröder Maschinenbau KG. The company's current MAX massage units are

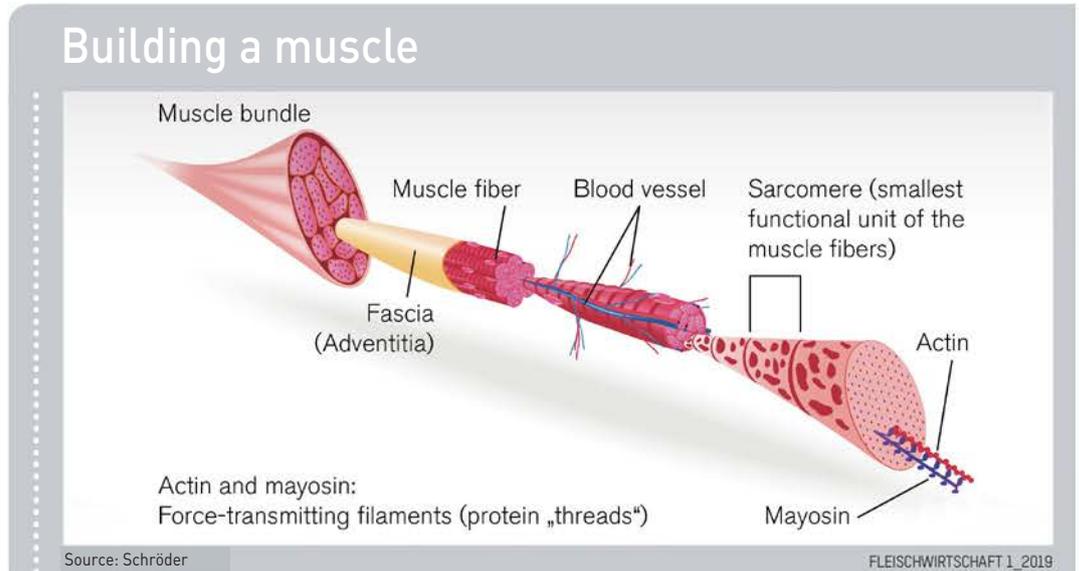


Fig. 1: Processing of the native muscle fiber structure of the raw material is crucial for the sensory quality and economic aspects of the resulting meat product, such as cooked cured products or soup meats.

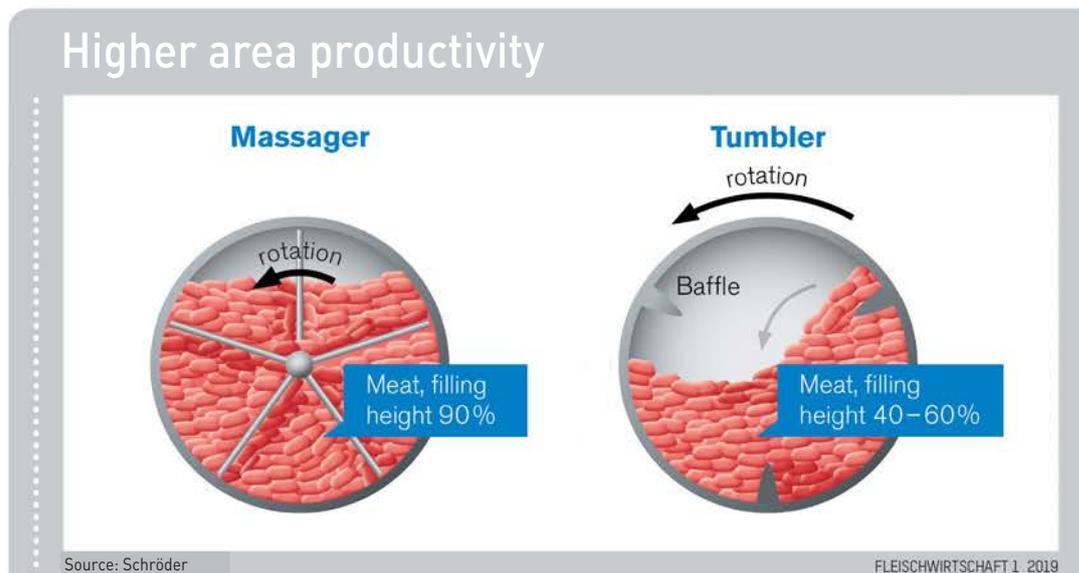


Fig. 2: A massage unit a much higher usable volume than a tumbler and therefore consumes significantly less space.

available in sizes ranging from 600 to 6000kg nominal fill volumes. Massaging particularly established itself as the most effective technology for bone-free products such as traditional cooked ham to the point that it is used by around 70% of the German meat industry today.

Compared to the tumbler, whose fill volume (depending on the design) lies at 45–55%, the massage unit achieves 85–90% (Fig. 2). This gives rise to crucial advantages: on the same floor area of one unit, almost double the product amount is processed. What is more, thanks to the high fill level, the headroom

above the product is reduced to just 10–15%, which is only one-third of the free, unused volume of a tumbler. Besides the fact that the massage unit processes twice the amount of meat, the vacuum is built up in a considerably shorter time and thus saves on costs. During operation, the vacuum

