



Protein Handling with SoftGripper

Hygienic Protein Handling
Packed and Unpacked Protein
High Speed Pick and Place
Steaks, Sausages, Poultry, Burger

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|------------------------|--------------------|
| Gripper Type | 8 Finger Parallel |
| Gripper Size | 16 cm x 10,0 cm |
| Gripper Weight | 0,6 kg |
| Hygienic Design | yes |
| Picking Rate | up to 40 picks/min |
| Gripping Object Size | 12 cm - 20 cm |
| Gripping Object Weight | up to 1,2 kg |

Robotic grippers for protein handling

Since the pandemic hit the protein and the food processing industry in general, we have seen the trend of large manufacturers of consumer protein products that used a lot of labor turning to forward-looking solutions. Not only for hygienic reasons or to save on personnel, but also because labor was hard to find in this area, especially not in the quantities that companies like Tönnies need to function. The task of automating entire production lines went to integrators.

Food Safety Regulations

First, we need to talk about hygiene concepts in raw protein processing. The exact food safety guidelines vary from country to country, but one thing is undeniable: protein processing is a highly regulated area, and hygienic conditions are key to the operation of any plant. Food safety quality assurance will be with you every step of the way. Special attention is paid to hygienic design. Newer Delta robots designed for use in food environments are made entirely of stainless steel and can be cleaned with pressurized water and detergents without damaging the electronics. At the same time, the design and materials of the grippers must comply with all regulations- which is fulfilled with our grippers. In addition, we have placed great emphasis on easy cleanability.

Pick and place

The first application that comes to mind is simply removing protein from the production line and placing it in boxes or trays for packaging. This step could be done after a line where the protein is cut. Here, the cutting of protein can be done either by factory workers or in an automated manner. What struck us here is that simply separating pieces of meat could save a lot of money on 3D vision and processing that would be required for the robot to pick individual pieces of protein. By the way, when we talk about pick-and-place applications, we're talking about fast robots like Delta or Scara robots, and usually a production line with more than a few robots for a task.

Pick and package

Picking and packing protein could be similar to a pick and place application, but if pick and place is used to align pieces or transfer them from one conveyor to another, for example, pick and pack means having a tray, bag, or similar container in which to place chicken wings or sausages, for example. One application besides tray packing was to pack fried chicken wings in paper bags that were then dispensed and opened, another was to place sausages in fairly narrow containers. Be sure to investigate the space requirements for the grab-and-go operation. Some containers can be extremely narrow and the grippers should not be dipping deep inside to place the product. Instead, it's a good idea to clear the gripper a few inches into the narrow package or even slightly above. Using a spacer between the gripper fingers will help with stability and alignment of protein goods, ensuring controlled release and placement in packing machines.

Sorting applications

Sorting isn't just about making sure pieces are properly aligned for the next task or separating different cuts into multiple product streams. The simplest task we encountered was making sure the pieces were assembled into dishes of a certain weight. Meat, like pork cuts always varies in size and weight, but what the end customer sees is a packaged product of, say, 500 g! So the pieces of protein must weigh at least 500 g to ensure that the customer gets what he paid for. But the extra weight of the packaged goods is something that could have been distributed differently among the boxes. In this case, each piece of meat is weighed and given an ID. Pieces that meet the required packaging weight are put together by robotic fingers in the primary packaging process. This ensures efficient product distribution.

Multistep product preparation

There are some tasks where protein meets other products, such as the preparation of sandwiches, burgers or whole meals. Preparing a burger in fast food restaurants requires a good and flexible grip. Have a look at our solution web side, to get more information.

