

Project example Hamburgers



Every minute just under 90 appetizingly assembled hamburgers roll off the plant at the Irish Kepak Group factory – thanks to the IPS product assembly and packaging line.

Each unit in the line responds to the product flow upstream and downstream of it. Compared to a static system, this substantially increases the average output. Everything takes place automatically: reliable separation of the bulk delivered ingredients, assembly of the bun and patty, and insertion of the other ingredients into the blister packs of the running thermoforming machine.

The first section of the line comprises two TLM machine cells from Schubert fitted with, in total, four TLM-F4 robot units. After being cut open by an upstream bread saw, the buns enter the plant on a wide conveyor. The four-axis robots perform the required tasks in sequence: lifting off the lid of the bun and placing it next to its base, picking up the meat patty and laying it on the bun base, replacing the bun lid, then transferring the assembled hamburger to the formation belt. Four incident-light scanners provide position data to guide the robot movements, while at

the same time supplying picture data as the basis for inline quality control.

The hamburgers then pass through the line section in which the blister packs are thermoformed. The two following machine cells are arranged above the film web. Four-axis robots first insert the sauce portion packs and then the cheese slices. The assembled hamburgers are placed in the film cavities by a TLM-F2 robot. Mounted on the robot arm is a special tool whose function is to engage eight products at a time and place them in the trays. The thermoforming machine then seals the packs with the film lid, punches the packs out of the web and places them ready to undergo the remaining processes.

All the process units involved, from the bread saw through to the (Multivac) thermoforming machine, are linked to the TLM plant by means of signal exchange and a setpoint speed value. The data exchange is organized at the Schubert VMS control level. How coordination with the thermoforming machine works? The control system recognizes a stop in the blister foil feeding system allowing the picker

1.



The fresh buns are cut open using a band saw. The upper half of the bun is lifted off the base by a TLM-F44 robot for further processing and is positioned in parallel formation on the product conveyor.

2.

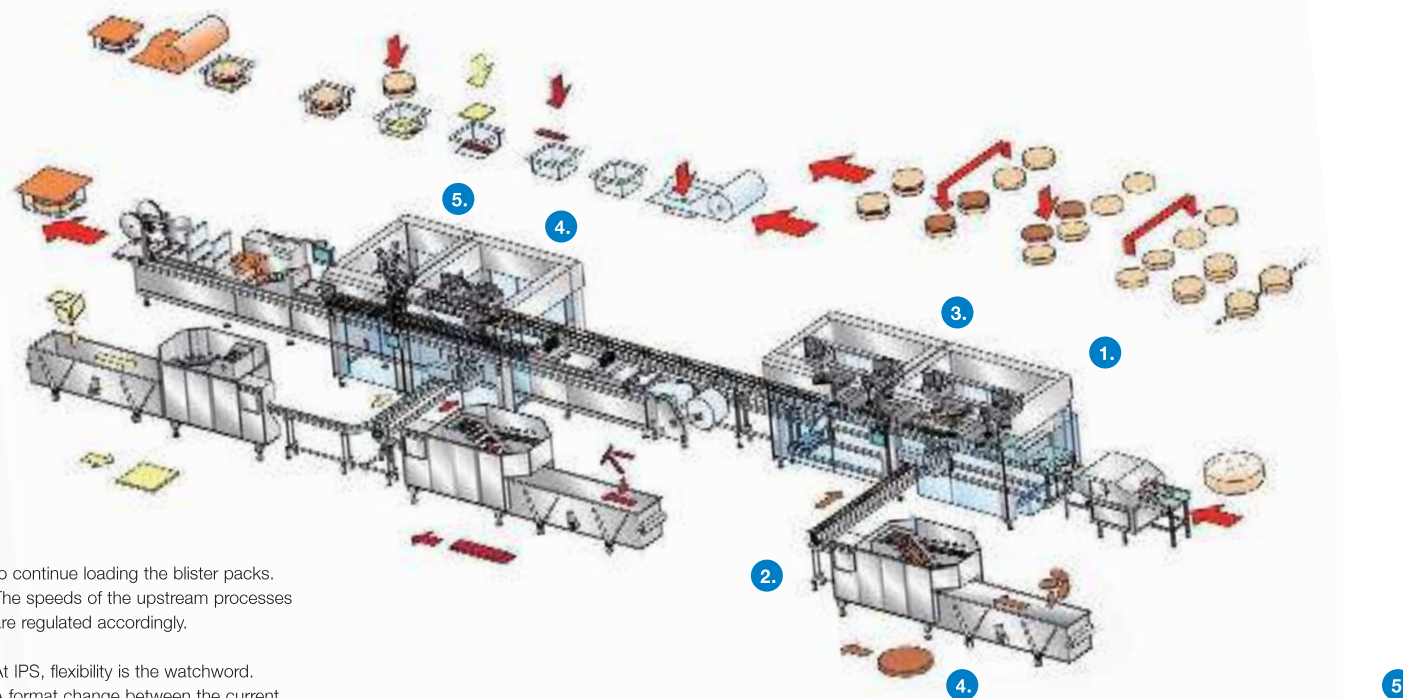


The IntelliFeed feed system separates the bulk delivered frozen pre-cooked meat patties, and conveys them, precisely spaced, in the required piece numbers heading towards the TLM-F44 picker.

3.



Only good meat patties conforming to specified quality criteria are placed on the hamburger bases.



to continue loading the blister packs. The speeds of the upstream processes are regulated accordingly.

At IPS, flexibility is the watchword. A format change between the current range of five different hamburger types takes no more than five minutes.

Depending on the product, different sauces and cheese types, supplied from an IntelliFeed System, are inserted in the online thermoformed trays.

Despite the exacting product tolerances, during each machine cycle eight ready assembled hamburger buns are fitted precisely into the trays before the upper film lid is sealed in place on the blisters.



Different ketchup and cheese types are inserted in the thermoformed trays. The added ingredients are placed ready in the TLM-F44 cell by means of IntelliFeed feed systems.



Despite the high product tolerances, eight ready assembled hamburger buns are fitted precisely into the trays before the upper film lid is sealed in place.