

PRIOSKOLIE GOES FOR FAST, HIGH-ACCURACY PACKING OF POULTRY PIECES

Case Study
Prioskolie

Facts and figures

- » An entire batch of over 24,000 birds can be handled from live entry to flow-wrapped trays in about 2 hours 20 minutes.
- » A single 830g pack of drumsticks, from cut-up system to flow-wrapped tray takes as little as 60 seconds.
- » Giveaway is very low. For wings and thighs it is as little as 0.2%.

Ishida has completed the installation of a chicken processing and packing plant in Russia's Belgorod province for poultry giant ZAO Prioskolie. The state-of-the-art plant includes Ishida's recently-developed weigh-batching technology, which has revolutionised the speed, accuracy and compactness of styling and packing operations.

Challenge

Prioskolie wished to scale up its operations and at the same time to reap the benefits of an integrated manufacturing execution system from a single supplier. Specifically, the company was looking for a plant that could ensure the highest yield from each delivery of live birds, together with the most efficient use of manpower and automation, and the fullest degree of control and traceability.

This implied that the chosen supplier would need to be expert in every department, from live bird handling and gas stunning through to the management of crates and trays.

Solution

Ishida was selected by Prioskolie to design, supply and install a new 10,500bph (birds per hour) plant at Valuyki, to be capable of expansion to 12,000 bph.

The integrated plant design, plucked and eviscerated birds are automatically assessed for packing whole or for cut-up. Overall, about 50% follow the whole-bird packing channel, while 50% are re-hung and enter one of the two cut up lines. This versatile section can be programmed to cut to a number of different patterns, yielding a wide variety of pieces, following the sequence wings-breasts-legs.





“ In the end, what it comes down to is value for money ”

Whatever the piece-pattern chosen, the resulting pieces are fed to four complete lines, each capable of composing well-styled, tightly weight-controlled packs of wings, legs, breasts or other cuts, then delivering them for flow-wrapping, labelling, placing in crates and palletising.

An efficient poultry processing factory can convert a single bird into its programmed cut-up pieces within minutes. To operate at today's speeds of thousands of birds per hour, all these pieces need to be handled as separate streams from the second they are produced. There can be no 'queuing' of breasts behind legs behind wings.

The solution adapted at Prioskolie and other recent installations is to produce highly accurate weighments at high speed which are then placed in trays and all necessary manual adjustments made to ensure perfect presentation. This is achieved using Ishida Weigh-Batchers. Each of the four weigh-batchers at Prioskolie comprises an Ishida R-Series Multihead Weigher, a 16-station batching table and the belts, diverters and signalling systems that enable optimal synergy between automation and human operators.

The Ishida weighers are Screw Feeder models, able to handle sticky chicken and other fresh meat gently but at high speed. Belts positioned a few feet above the work surface take the weighments towards the workstations. As a weighment approaches a workstation which has capacity, a diverter arm sweeps the product off the belt into the upper level of the station, where it is held over a gate, while a light indicates its presence to the operator.

When ready, the operator pushes into place an 'intermediate' tray, which causes the gate to open and the weighment to fall into the tray. The operator transfers the contents of the intermediate tray to a packing tray, and positions them for optimum presentation. The packed tray is then placed on a belt leading to the wrapping and labelling section. When the operator is ready, he or she pushes the empty intermediate tray back into place, triggering the release of the next weighment. Prioskolie are very pleased with the resultant throughput. An entire batch of over 24,000 birds can be handled from live entry to flow-wrapped trays in about 2 hours 20 minutes.

For a single 830g pack of drumsticks, for example, the whole process from cut-up system to flow-wrapped tray takes as little as 60 seconds. The weigh-batcher performance capacity is 40tpm (trays per minute). The target performance is 32tpm, and it is currently attaining 28tpm. The weigh-batcher approach is very accurate indeed. Giveaway is very low, despite the demanding minimum weight regulations that operate in Russia. For wings and thighs it is as little as 0.2%.

As regards efficiency, according to Production Manager Sergey Vyacheslavovich Chasovskikh, the availability of the equipment is 95%, while performance is 80% and quality is 97%, giving an overall equipment efficiency (OEE) for weighing and packing of over 73.7%.

Prioskolie were impressed not just with the technology of the new plant, but with the extent to which Ishida were able to integrate across all activities. For example, each multihead weigher can assess the input of pieces it is receiving and cue the cut-up centre to send it lighter, heavier or more varied pieces to help it improve pack weight accuracy.

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