

Packaging whole muscle products gets a complete make-over

by the technical team, Tipper Tie Inc, North Carolina, USA.

Packaging hand-placed whole muscle products has got faster and more cost effective thanks to a healthy dose of innovative equipment design and engineering from a world leader in automated clipping systems.

The new Tipper Tie TN4200 draws from the proven technology base of the company's successful TN4001, adding dynamic features that can only be described as real game changers for ham processors of every size and type. Those using competitive systems, looking to replace old machines or upgrade their process with improved technology will find the TN4200 hard to ignore.

The prospects of reduced operating costs, increased productivity, and lower total cost of ownership are very appealing. Even manual operations wanting to escape slow, labour intensive production and transition to an automated process will want to take a close look.

Larger, longer cuts

The first thing customers will notice is the machine's longer 812mm breech. A critical design objective for engineers was to provide processors with reliable, automated technology enabling them to handle larger and longer whole muscle products like boneless hams, loins, steaks, whole muscle deli slices and more.

However, bigger products demand some sort of compression mechanism because the breech's maximum available inside diameter is 203mm. Imagine a rather wide 508mm cut in

there. It would have no place to go. But, once the breech door is dropped, the fast acting lid system begins compressing the meat.

The servo-powered breech, another unique system enhancement, literally presses the product and changes its shape to fit the horn. Tough products like beef can even be over-compressed in the breech chamber. Before the pusher starts the meat can be relaxed by opening the lid slightly enabling fast, easy pushing with less wear.

Compression creates some immediate processing benefits. Cooking yields are improved because the products have more uniform shape and diameter consistency, and will cook evenly throughout.

At their extremes there are no irregularities that can become too dry and unusable because they cook faster. Slicing yields get a boost for operations producing consumer unit whole muscle steaks and sliced products.

Packaging costs can also be positively affected. The TN4200 has a casing horn the same length as the breech giving the machine the flexibility to run shirred casings, cost-effective roll stock films or nets. Even the finished package inventory mix can be rationalised because more consistently sized and

18.9mm. In a processor's current process, every millimetre more adds to his cost of ownership. There is evidence that a machine can be paid for in just six months from material savings alone.

Inventive engineering

Tipper Tie engineers were also challenged to make repeatable, consistent performance and low maintenance integral parts of the TN4200 value. The result is the first and only whole muscle system with a servo-driven pushing unit.

This makes it very fast acting, extremely reliable, and provides a degree of control and product consistency unachievable with a pneumatic system. Unlike machines driven by pneumatic cylinders the servo system has few wear parts and reduces overall maintenance costs. With a pneumatic system proteins from meat and salts from injection get on the cylinder shaft then on to the seals. Eventually these proteins and salts migrate through the seals into the cylinder causing failure.

Replacing the pneumatic cylinder is expensive and that cost is multiplied when lost productivity is considered. The servo pusher system eliminates this problem.

tinuously repeated which is critical to achieving product consistency.

Another important system distinction are three critical process phases – initial push, main travel, and final push – which can be programmed to the requirements of the application and precisely controlled.

For example, with the initial push the system can increase speed as desired which is important for different products.

In fact, control is so exact that the pusher can be started even though the other end is closed by the clipper. Then through the main travel the pusher can rapidly increase speed to gain efficiency.

The length of the pushing device's main travel can be accurately adjusted to a single millimetre. For the final push the system slows again for better control and to prevent damaging sensitive casings as it pushes the product out of the horn and into the casing or net for clipping.

Drawing again from proven technology the TN4200 uses the same reliable clipper as the TN4001 and same style as the widely used Tipper Tie RS clipper.

Speed drives throughput

Of course, the first question about any automated packaging machine is how fast is it?

Speed drives throughput and the TN4200 runs at nearly double the pace of its competitors packaging 6-8 pieces per minute.

Product delivery, however, is critical to maximising its potential. The machine can only run as fast as its single operator can load it.

When evaluated as a complete system the combination of speed, production efficiency, low maintenance, labour savings, cost savings, and overall product quality improvement position the Tipper Tie TN4200 to become the standard in whole muscle packaging equipment systems now and for years to come. ■



shaped products require fewer package sizes. Material savings are another benefit that should not be taken lightly and will play heavily in the machine's payback period. The tail length on every TN4200 package is cut at

After the meat has been compressed in the servo breech the pusher starts.

It is completely computer controlled giving greater command of speed and delivering the highest repeatability in the market.

Since the location of the servo is known at all times and can be controlled, the same action can be con-