New automatic test technology tackles meat production disruptions

Fortress Technology has unveiled its newest version of its Halo automatic testing technology, giving meat processors repeatable and reliable metal detector test results.

by Phil Brown, European Sales Director, Fortress Technology, UK.
www.fortresstechnology.co.uk

Forming an important part of manufacturing due diligence, automatic testing checks that your metal detector is working as it should. Halo 2 provides the meat sector with a traceable and auditable testing procedure, satisfying retailer Codes of Practice. Capable of independently testing for all metal materials – ferrous, non-ferrous and stainless steel – the system also checks the performance of the reject system.

Because Halo is an external device, it gives manufacturers a true measure of how each metal detector is performing. It works by effectively mimicking the signal disturbance that occurs during manual testing, without having to physically pass a metal contaminant through the metal detector. Because the system is configured to the same consistent signal, the test results will mirror each other, resulting in a more reliable and credible test.

Most food manufacturers will test each metal detector at the start and end of the production shift, and then throughout the day at regular intervals, typically hourly. In many applications, testing the metal detector is made difficult due to access, machine position, product flow and environmental conditions. This is especially true in pipeline metal detectors, predominantly used in sausage manufacturing or the processing of meat products like pate.

With pipelines there are two manual testing methods. Because the tube where the product flows runs through the centre of the metal detector aperture, operatives typically insert a test stick in the gap between the tube and the aperture. The main issue with this method is the test stick is placed at the most sensitive part of the metal detector.

Although it will give off a great signal, it is not representative of what you might actually find in the centre point of the aperture where the product is being pumped through. The alternative option is to introduce test pieces into the product itself.

The downside to this process is you have to flush through and remove the test piece. This can be a much more involved task with operatives having to disassemble and reseal the pipe, increasing manual test times from several minutes to between 10 and 15 minutes. In addition to being a huge drain on resources and a significant disruption to actual production, this method also increases the risk of introducing contaminants into your product.

For the inspection of fresh and frozen meats and packaged meat products, conveyor style metal detectors are typically used. These can be just as hard to get a consistent signal reading for each test.

The reason is you are relying on the test piece passing through the exact centre of the aperture. So, if an operative puts the test piece underneath the product on one test, to the side of the next on the

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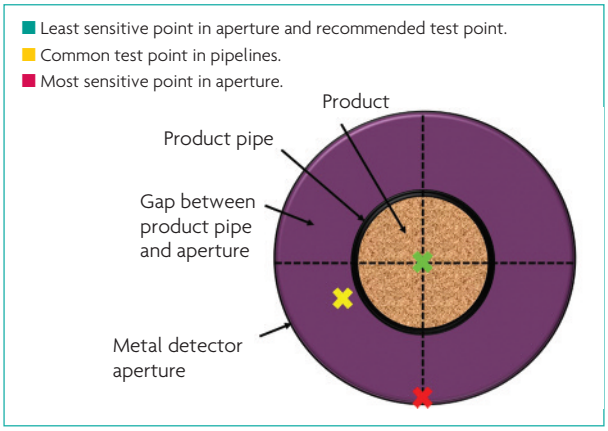

The centre is the recommended test point in a pipeline metal detector.

Conducting manual tests on pipeline metal detectors can take 10 or more minutes for every test.

For accurate tests, metal samples should be inserted into the product to ensure it passes through the centreline of the aperture, which is much harder when inspecting joints of frozen meat.

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conveyor for another, the signal varies. This means meat producers have not got an accurate or repeatable test.

Accurate manual testing of metal detectors inspecting frozen meats is even more challenging, as being a solid mass you cannot insert a test piece into the middle of the product. The costs of conducting these tests manually on such a regular basis can be high.

Automatic testing tackles this drain on resources, saving valuable time spent running and documenting repetitive tests. It also helps to eliminate the risk of human error. In many food production settings, as soon as one check is done, it is time to start over. If you factor in every production stoppage and the labour costs associated with manual testing on each production line, it soon mounts up.

For example, in one day, a single metal detector system that is manually tested at least five times each day may cost a meat manufacturer around £250 a day in machine downtime and testing time, especially in pipeline applications.

Previously just available for gravity, throat and pipeline metal detectors, the latest Halo release has been adapted to work with a conveyor style metal detector to further reduce operational costs. Payback for a new Fortress metal detector fitted with Halo 2 is typically less than 12 months. ■

Tips for manually testing your food metal detector

Automatic testing is designed to complement manual testing, helping to strengthen food safety compliance and metal detector system security on processing and packing lines. When running manual tests remember to:

- Place test samples in the centre of the aperture, which is the least sensitive spot. Because this is highly unlikely to be sitting on top of your product pack, or on the top of the conveyor belt, test samples should be inserted into your product to ensure it passes through the centreline of the aperture.
- Use good, fresh product. Remember that product characteristics, packaging and size will likely affect the detection level, so always use the actual product your metal detector is inspecting. And when making test packs, use fresh product, especially for packed meat, as degradation can affect the product's characteristics. Before inserting the sample, pre-check the packs to ensure they are free of metal contaminants.
- Check all three metal samples – ferrous, non-ferrous and stainless steel. Because they are all detected at different levels, even if one metal sample is picked up, that does not necessarily mean the integrity of the detector is proven. To ensure you are detecting stainless steel contaminants that are commonplace in meat production machinery, use a non-magnetic 3 series (i.e. 316) stainless steel sample.
- Test using realistic production conditions, including speed and the way products are presented. This ensures that your reject mechanism is operating correctly. Automatic reject systems must prove that it is rejecting the pack effectively, regardless of where the sample is located (e.g. front of pack or back of pack). An automatic test system must also ensure that subsequent packs are not damaged or trapped, or ignore consecutive contaminated packs.

Even belt stop systems should be checked to ensure contaminated packs are held at the point where an operative can recover them.