

Magnetic planar conveyors

Magnetic Planar Conveyors – Stage 1 – Environmental Testing

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Prepared by
Kristian Guard

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Project Description

New technologies are developed outside of the meat industry continuously, that could have benefits and applicability to the red meat industry. Only by looking out for new technologies and their applications into other industries can other technologies be leveraged for beneficial use in the meat industry processing environment. One such technology is magnetic planar conveying. Based on possible benefits, it behoves the industry to trial the use of such a conveyor in a washdown environment, to understand the lifetime of the technology within Australian meat plants.

Project Content

The project aimed to investigate:

- 1) The current robustness of magnetic conveying solutions when operating in an Australian red meat boning room environment
- 2) Any platform R&D / further development required to ensure the solution is robust in the identified environment
- 3) Identification of use cases and business propositions

The project undertook to monitor the performance of the Planar Motor unit over a period of 6 months while experiencing regular washdown conditions to understand the technology's ability to withstand the harsh red meat industry processing environment.

The steps undertaken were,

- 1) Confirm concept design for the trial unit
- 2) Design housing and electrical enclosure
- 3) Purchase components
- 4) Assemble and factory test
- 5) Successful demonstration to AMPC staff
- 6) Relocate to site and start 6-month site trial
- 7) Monitor with site the progress of the trial
- 8) Report on the 6-month findings.

Project Outcome

The planar motor has performed without any issues over the 6 months it spent on site being washed down. No major issues have arisen over the 6 months. This demonstrates that the technology has the potential to work well in the red meat industry.

Benefit for Industry

There are a range of benefits behind the use of this technology within the red meat industry, that fit within AMPC's 2020-2025 strategic plan. These include:

- 1) Industry 5.0, via individual part tracking and mass customization

- 2) Carcase Primal Profitability Optimisation, via accurate processing (Adv. Mft.)
- 3) Digitisation, via acquiring product information and leveraging data insights (Adv. Mft.),
- 4) Retention, via staff able to work at different paces to each other (People & Culture),
- 5) Traceability, via unique part tracking in a boning room
- 6) Food Safety, via less lubrication fall-out from existing solutions

In addition to the benefits identified by AMPC, there are other benefits including:

- Potentially easily cleanable surfaces
- More hygienic designed conveyors (less crevices for bacteria growth)
- Enabler of sorting solutions and other technologies due to asynchronous movements

Useful resources

<https://www.youtube.com/watch?v=bsZIW6UlcAk>