

Case study: Waikato milking systems



When Hamilton-based Waikato Milking Systems saw an opportunity to use new technology to enhance the quality of its products and cut costs at the same time, it didn't think twice.

The company – 100 per cent Kiwi owned and operated – designs and manufactures a wide range of cutting-edge milking systems and components for both local and international markets.



Unsurprisingly, dairy farms present a harsh operating environment; any associated equipment and technology need to be robust enough to endure it.

"We're constantly looking for ways to enhance and toughen our offering," says Gustavo Garza, Waikato Milking System's Technology Development Manager. "That's why we welcomed Fero's offer to visit our Hamilton manufacturing plant and help identify potential process improvements."

TradeTech and Wire Solutions recently joined forces to create the new brand, Fero. Together they can now offer manufacturing customers an integrated approach to electronics and wire technology. The company also provides tailored solutions, including collaborative design

and manufacturing, and production line troubleshooting.

The electrical wiring looms forming the power supply to the milking units were quickly identified as an area for improvement.

"We were hand-making the wiring looms in-house using quite a conventional process," says Gustavo.

The setup consisted of a branch-out loom spliced into the backbone, which was encased in heat shrink material to waterproof it as best as possible.

Greg Fulton, managing director of Fero, proposed a bespoke solution using Henkel NZ Macromelt moulding technology.

Macromelt molding is an injection moulding process, but at very low pressures and temperatures using hotmelt adhesives.

"The beauty of Macromelt moulding is that it allows small, tailored production runs – ideally suited to New Zealand applications," says Greg. "It can help to satisfy our innate appetite for innovation by making the prototyping stage more accessible."

The low temperatures and pressures inherent in the Macromelt process mean that tooling can be made from lightweight aluminium rather than heavy steel; this makes

tooling inexpensive and tool changes a breeze.

The low-stress Macromelt process also means it can over-mould more sensitive materials, such as the electrical wiring used by Waikato Milking Systems.

Together the design team, comprising engineers from Fero and Waikato Milking Systems, arrived at a design for a simple yet robust plug-and-play component.

"The new component ticks all the boxes – it's water-resistant, cost-competitive, it provides a professional finish and it has sped up production," says Gustavo.

Feedback from customers has been equally positive, including those in its thriving export markets. Waikato Milking Systems sends 30 per cent of its product offshore to the likes of the UK, France, Italy, USA, South Africa, Australia, Mexico, Venezuela and Costa Rica.

"On the world stage it is important to have an edge over competitors," says Gustavo. "This product innovation has helped us lift our game and bring our milking system technology into the 21st century."

Part of the success of this Macromelt moulding application can be attributed to the collaborative nature of the design and build process. Fero and Waikato Milking System engineers worked closely to perfect the component, ensuring it addressed all the issues.

"Working with Fero was like working with a group of friends," says Gustavo.

Concept to commissioning took just a few weeks, including rigorous in-line testing.

Thanks to the initial success with wiring looms, Waikato Milking Systems is presently considering several other Macromelt applications in its manufacturing process.

In fact, Macromelt moulding is suitable for many different industries and applications, for example, encapsulating electronic components, connector potting and for setting grommets in place.

The material itself, a thermoplastic hotmelt adhesive, has excellent electrical insulation and water-resistant properties, and adheres well to plastics. It's also non-toxic and comes from a renewable source, making it environmentally friendly.

"The potential applications for the Macromelt moulding process are vast," says Greg Fulton. "The majority of New Zealand manufacturers would benefit in some way from this technology." ● *Go to www.electricaltechnology.co.nz/enquiry quote:*

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