

# Waterless Lamb Frenching Prototype

2024-1020 Waterless Lamb Frenching Prototype

Project code  
2024-1020

Prepared by  
Jack Hercus – Curious Creations Ltd

Date submitted  
24/06/2024

**Disclaimer** The information contained within this publication has been prepared by a third party commissioned by Australian Meat Processor Corporation Ltd (AMPC). It does not necessarily reflect the opinion or position of AMPC. Care is taken to ensure the accuracy of the information contained in this publication. However, AMPC cannot accept responsibility for the accuracy or completeness of the information or opinions contained in this publication, nor does it endorse or adopt the information contained in this report.

No part of this work may be reproduced, copied, published, communicated or adapted in any form or by any means (electronic or otherwise) without the express written permission of Australian Meat Processor Corporation Ltd. All rights are expressly reserved. Requests for further authorisation should be directed to the CEO, AMPC, Northpoint Tower, Suite 1, Level 29, 100 Miller Street North Sydney NSW.

## Project description

The purpose of this research project was to develop an automated waterless frenching solution as a safe and sustainable alternative to frenching with water or knives. This project built on the findings of the Alpha prototype that was produced under project 2023-1020. The overarching objective of the project was to demonstrate that the automated solution was commercially viable by producing a repeatably high standard of frenching at sufficient speed to meet production requirements.

## Project content

The summarised project objectives included:

- Design and produce a Beta Prototype that incorporates the design change recommendations of the Alpha prototype and complies with relevant industry food hygiene and safety standards.
- Design and produce a Beta Prototype that is easy to install, operate, maintain and clean.
- Design and produce a Beta Prototype that has design features that enable an adjustable frenching length between 40mm and 70mm, and the processing of lamb racks with a bone/cap thickness of 6mm to 20mm.
- Carry out Beta Prototype trials to validate that a production system will be a commercially viable alternative to manual frenching.
- Carry out Beta Prototype trials to test and validate the repeatability of the process.

## Project outcome

A Beta prototype was produced that incorporated the recommended design improvements of the Alpha prototype while also meeting food hygiene and machine safety standards. Significant testing and development of the Beta prototype was conducted to improve the performance and repeatability of the automated frenching approach. Unfortunately, the achieved repeatability was too low to be commercially viable and further development is still required. The key issue that reduced the repeatability rate was the inability to position the bones of the lamb racks at the very high level of accuracy required. Throughout the project significant improvements were made in this area however there are still some instances where the performance is insufficient which results in damage occurring to the lamb rack bones.

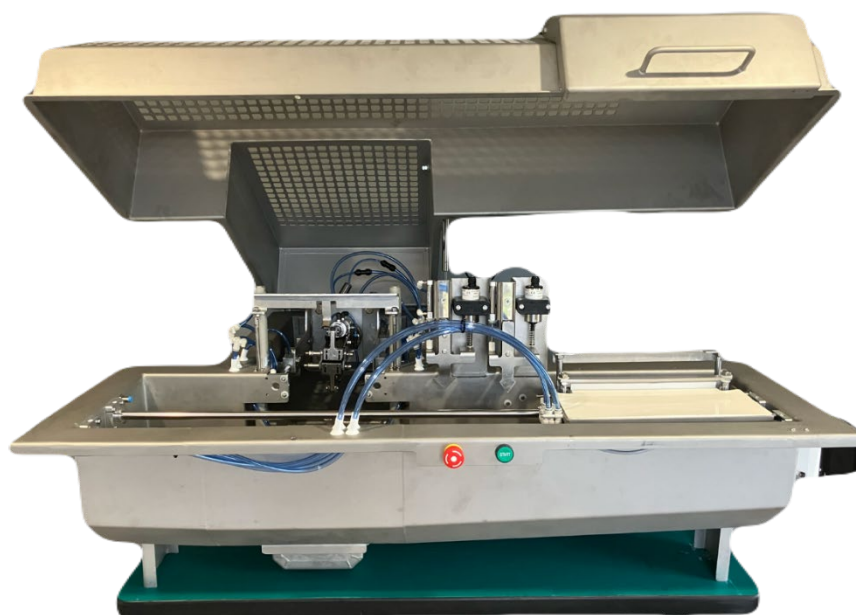


Figure 1: Completed Beta prototype.

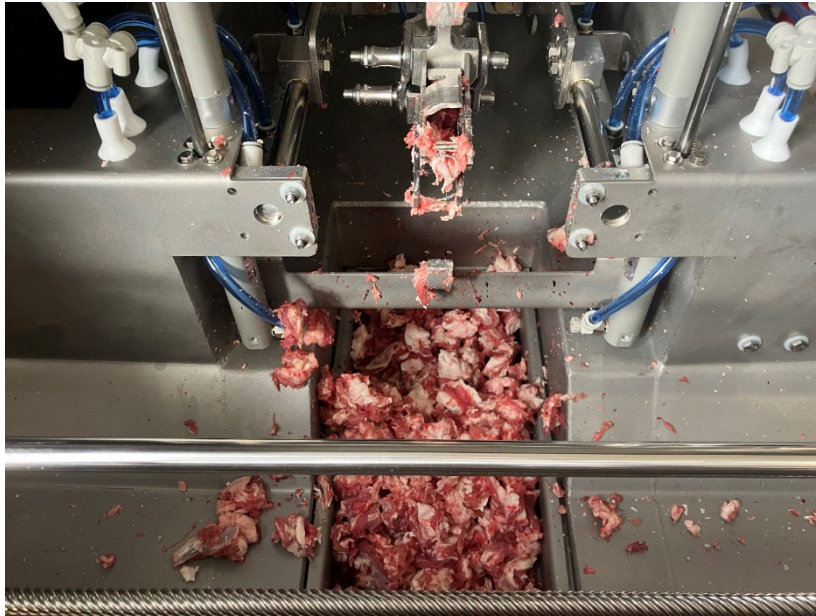


Figure 3: Removed accumulated intercostal.



Figure 2: Optimal finish that can be achieved.

### Benefit for industry

In Australia, most processing facilities currently rely on operational staff with knives to undertake lamb frenching. There are instances in Australian plants using the McLaren Stainless water frenching solution. Although this solution works well it is not suitable for all Australian locations due to the water usage, water source, and resulting additional trade waste load with the product (intercostals) and water being discharged to drain. Each 8-rib rack requires at least 21 knife actions (and up to 23), this activity results in up to 210,000 knife actions per operational staff member within a plant operating at 10 carcasses per minute. This task has both a WHS repetitive strain and knife laceration safety concern. A commercially viable automated waterless frenching solution would have commercial and sustainability benefits to the industry, while also reducing the instances WHS injuries associated with manual frenching.