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Designer | Cranswick Gourmet Pastry Ltd
Title | Reducing MSD risk in food manufacturing

Introducing the hopper topper has removed manual handling needed to fill the hopper with the transfer bucket and repeatedly bending down to collect the mix. Not using the steps has eliminated postural strain on my body. Having the pump means I don't have to continually bend and lift the pie mix.



BEFORE



← Photo 1 The operator bends down to scoop the pie fill from the tote bin into a small bowl before decanting it into the transfer bucket

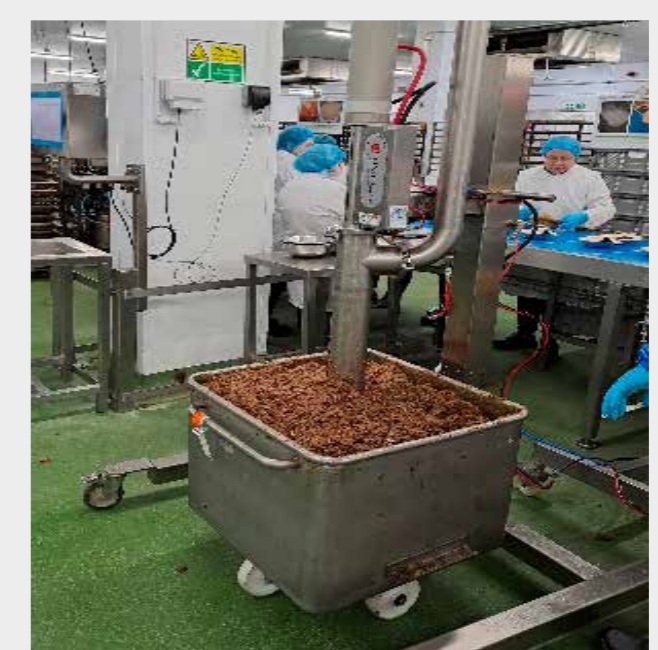
→ Photo 2 The full transfer bucket, weighing about 10kg, is carried up a set of steps by the operator and emptied into the hopper



- Previously, operators manually decanted pie fill from plastic trays into a tote bin. Each tray weighed 18kg with up to 14 trays on each rack. Lifting lower trays caused awkward postures. This was carried out by different operators throughout a 12-hour shift.
- Scooping the pie fill from the tote bin involved an operator repeatedly bending their torso, placing stress on the lower back, potentially risking injury. They also repeatedly applied force to grip the bowl, often in awkward hand or wrist positions, exposing them to upper limb discomfort risks.
- While climbing 3 steps to empty pie fill into the hopper, operators held the 10kg bucket with one hand, and a handrail with the other, impacting their posture. They held the bucket at head height, further increasing manual handling risk. The limited space restricted working posture.

AFTER

→ Photo 3 The hopper topper transfers the pie fill from a tote bin into the hopper to eliminate MSD risk



← Photo 4 Operators 'crimping' and weighing pies at the end of the line

- Involving employees throughout equipment trials ensured they shared ownership of these changes.
- Previously, operators pushed pie fill through mesh on top of the hopper as the mix was too thick. Working with them, engineers designed an extension to bypass the mesh, eliminating the need for high hand forces.
- Once the tote bin is delivered to the pie line, the hopper topper is moved on wheels into position by the line leader. Its pump transfers filling from the tote bin into the hopper. This eliminates the need to lift the filled bucket up the steps and above head height to decant it.
- A sensor maintains the product level, eliminating the need to climb steps for visual checks.
- Operators take regular breaks and are rotated to different activities to control upper limb disorder risk.