Society of Dairy Technology
Spring Conference
21st March 2024
John Kirwin
Sales & Marketing Director Penmann

- Brief overview of Penmann
- Why the need for rapid cooling
- Our history of rapid cooling
- Clauger Cooling Cell
- Summary & Questions
Penmann

- Established 1975
- Design and turnkey project delivery
- Cooling solutions for production areas & products
- Established provider of rack & pallet cooling systems
- Delivering solutions to a wide range of Dairy producers
Why do you need rapid cooling

- To slow down microbial activity/process
- Get products to set and improve final appearance and texture
- Enable handling/packing
- Prevent product rejection/spoilage/complaints
- Maximise your throughput/ROI
Our experience in rapid cooling

• 1995 First inline fully automated inline pallet cooling for Muller Dairy
• Tunnels installed for Nestle Uniq plus 6 more for Mullers
• Inline cream cooler for Arla
• Static Coolers for Rachels/Bridge Farm/Dale Farm/Dairy Crest
• Partnership with Clauger and their rapid cooling cell
Standard Blast Chill issues

- Cooling System often designed on heat load
- Designed on a high velocity principle
- Air can easily bypass the product
- Product stacked too deep
Clauger Rapid Cooling Cell Features

- Inflatable air bag seals
- Patented draw through airflow
- Energy efficient fans
- Cater for variable pallet/trolleys heights
- Variable residency possible
- Manual or fully automated
- Multi-Level
Airflow Simulation

**DO**

Numerical Simulation – air velocity
Pallet side view
CLAUGER system with airtight system around pallets

**DON’T**

Numerical Simulation – air velocity
Pallet side view
Different system – Without airtight system
Rapid Cells v Standard Blast Chill

- 20% improvement in efficiency (COP)
- Operate 5°C higher
- No hot gas defrost required
- Cooling reduced from 4 to 2.5 hours 40%
- 38% increase in throughput per day
Benefits of rapid cooling

• Dramatically improved your cooling times and reduce bottle necks
• Controlling PH levels and improve product texture
• Improved your product shelf life and quicker dispatch
• Improve throughput and increase capacity
• Consistent product
• No product rejection
• New or retrofit installation possible
Summary

• We can provide you with a wealth of knowledge and experience in dairy production
• Rapid Cooling Cells provide great benefits to producers
• Thank you for your time and any questions or challenges we can help you with?