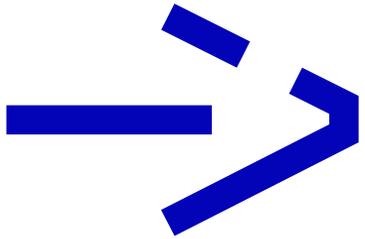


Improving Sanitation Efficiency by Design

Christian Becker, Minneapolis MN, May 18 2022

AGENDA

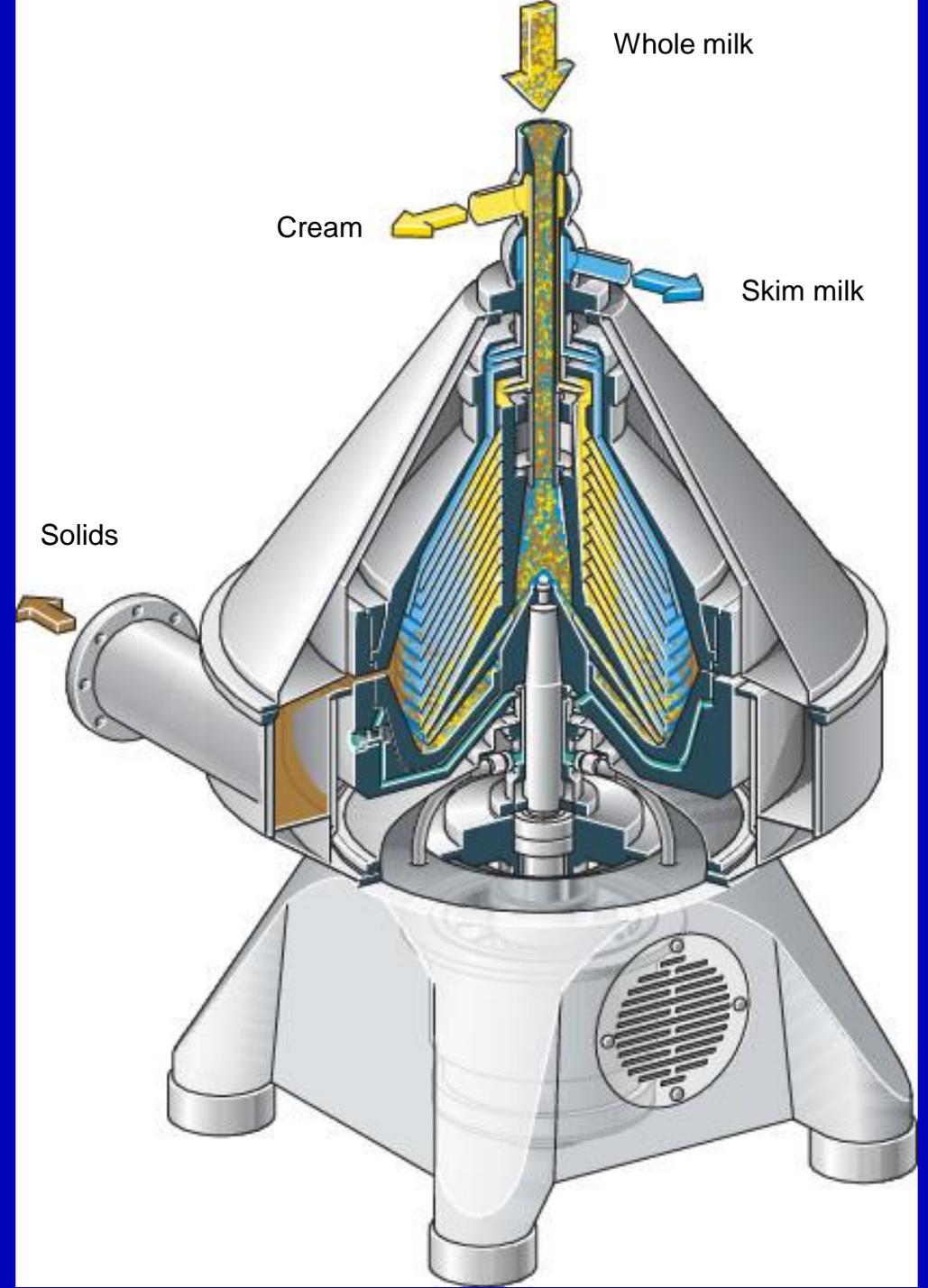


- Centrifuges in the Dairy Industry
- Challenges in cream cheese processing
- Hygienic Design
 - Avoid the formation of product deposits
 - Effective removal of product deposits
 - Facilitate steady cleaning media quality

Centrifuges in Dairy Processes

A versatile technology

- Milk-/ whey-skimming
- Milk-/ whey-clarification
- Bacteria Removal
- Butteroil
- Ghee
- Greek yoghurt concentration
- Cream cheese concentration
- Special products: casein, lactose, DCP



Centrifuges in Dairy Processing

How it works



Design to Clean: Creating a Hygiene focused Culture

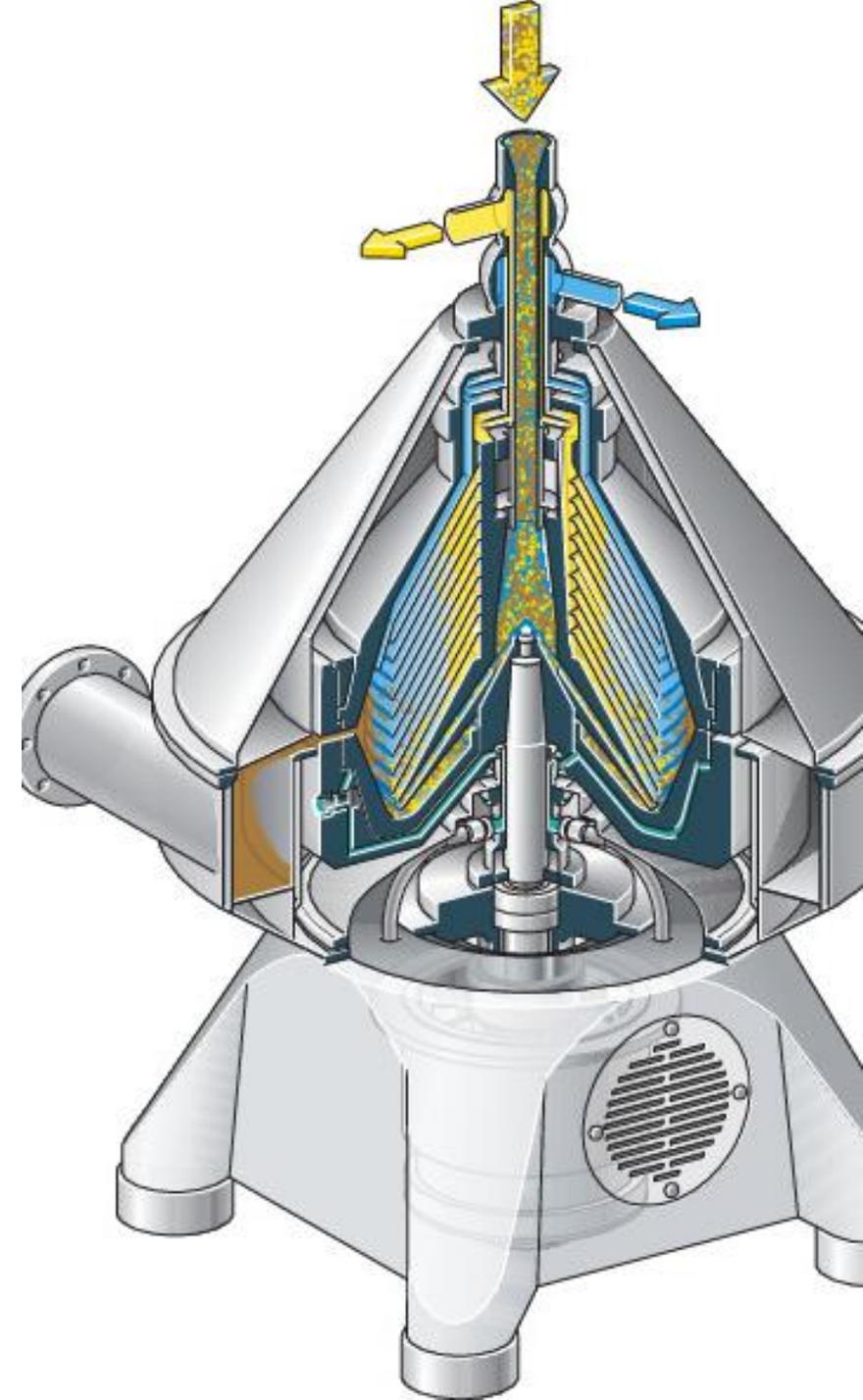


Improving Sanitation Efficiency by Design

Challenges in Cream Cheese Processing

Challenges in Cream Cheese Processing

- High viscosity
- Large volume share of light phase required space in the bowl center
- Proper pressure balance between light and heavy phase is key



Challenges in Cream Cheese Processing

Risks of insufficient cleaning



- Risk of microbiological contamination of product
- Reduction of shelf life/ beneficial properties
- Loss of sales
- Loss of reputation



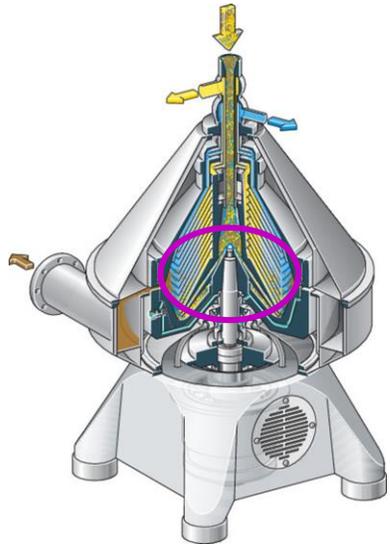
- Reduction of OEE/ equipment availability
- Excessive CIP costs
- Loss of profit

Hygienic Design

Avoid formation of product deposits

Hygienic Design

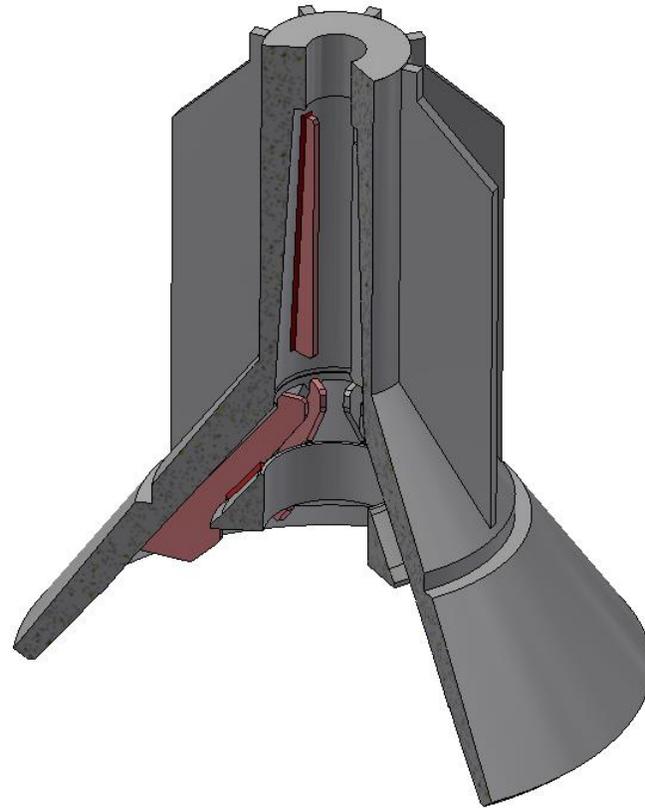
Avoid the formation of product deposits



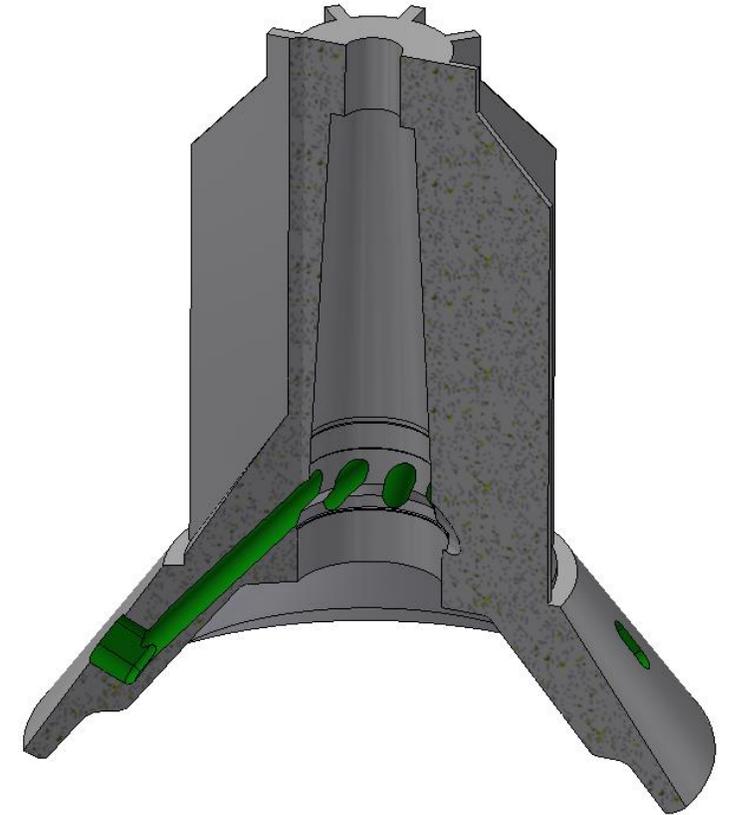
Drilled distributor design for:

- Less product deposits
- Better cleaning

Previous

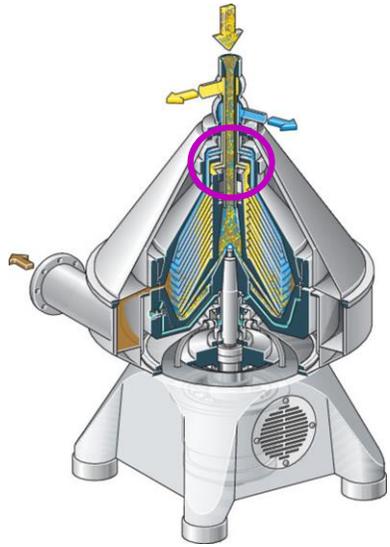


New

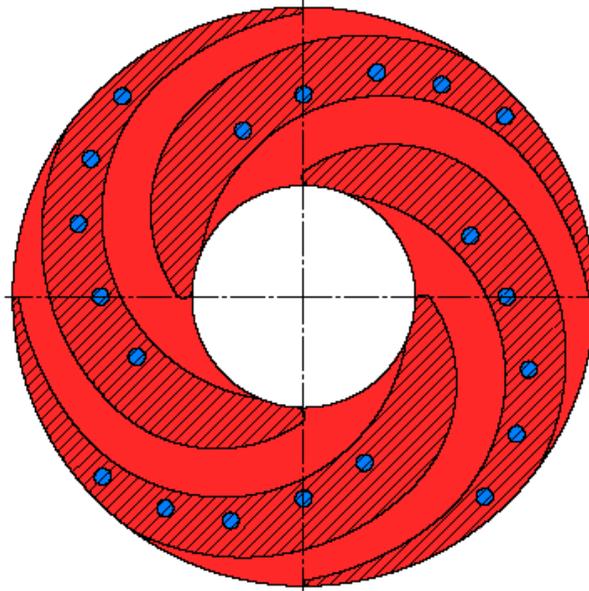


Hygienic Design

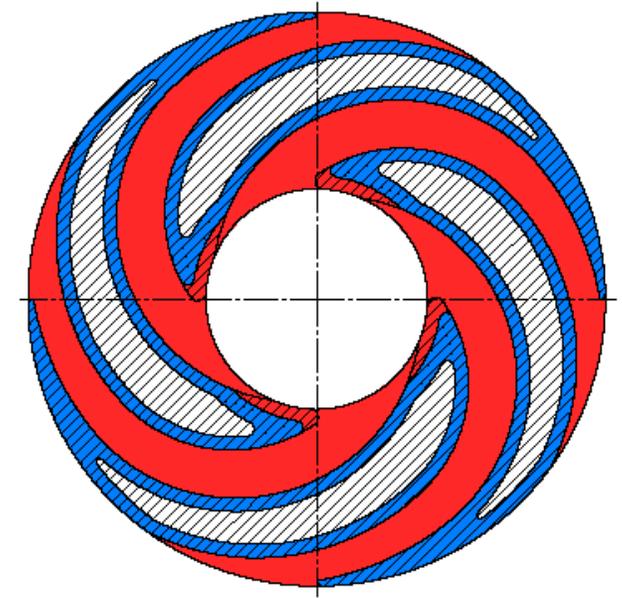
Avoid the formation of product deposits



Previous



New



Completely welded and re-designed pump for:

- Less product deposits
- Better cleaning

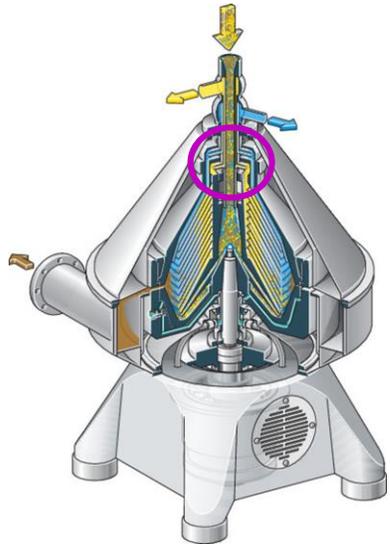
- Unpressurized surfaces
- Welded surfaces
- Pressurized surfaces

Design to Clean: Creating a Hygiene focused Culture

Hygienic Design

Avoid the formation of product deposits

New



Design to Clean: Creating a Hygiene focused Culture

Hygienic Design

Effective removal of product deposits

Hygienic Design

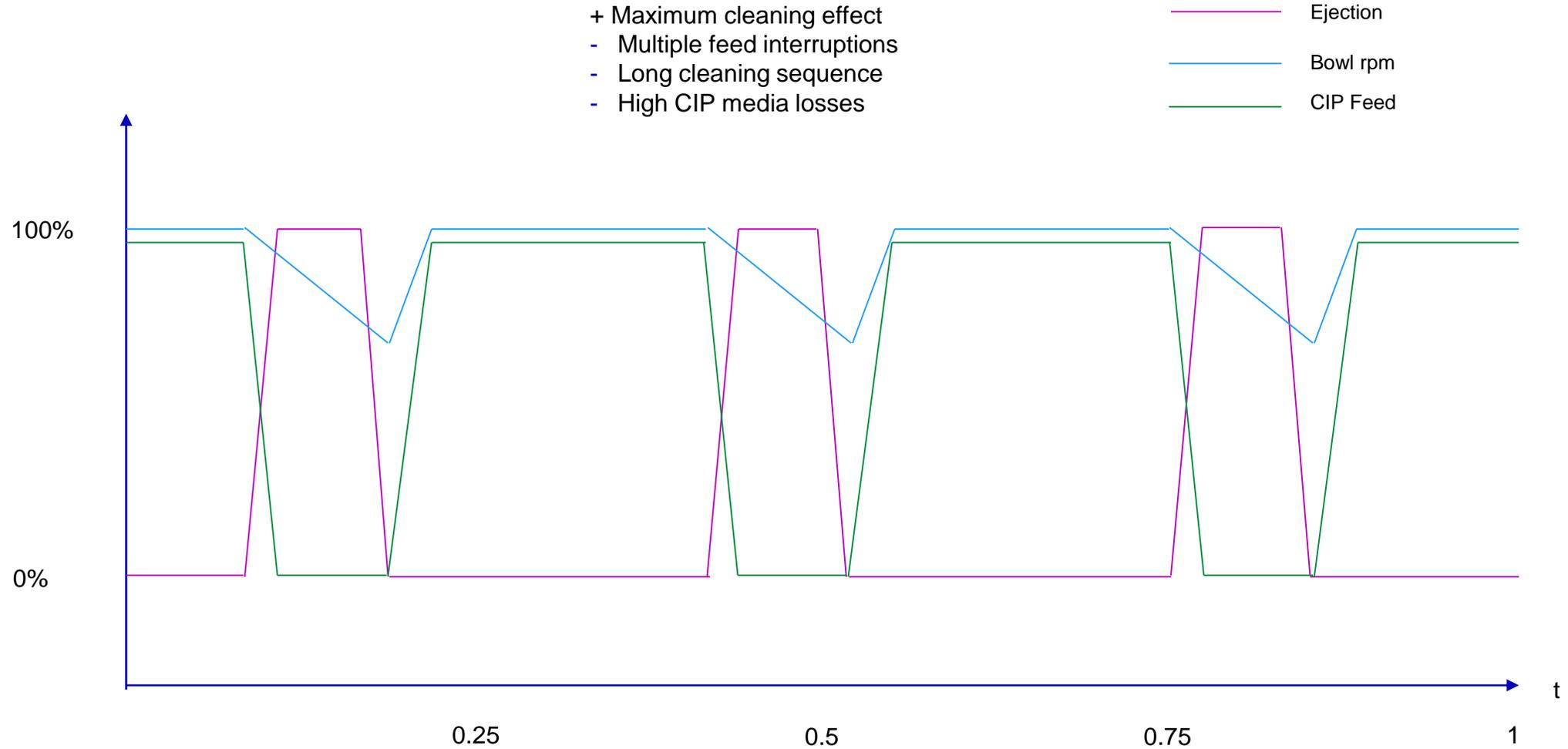
Effective removal of deposits



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Hygienic Design

Effective removal of deposits – Total Ejections

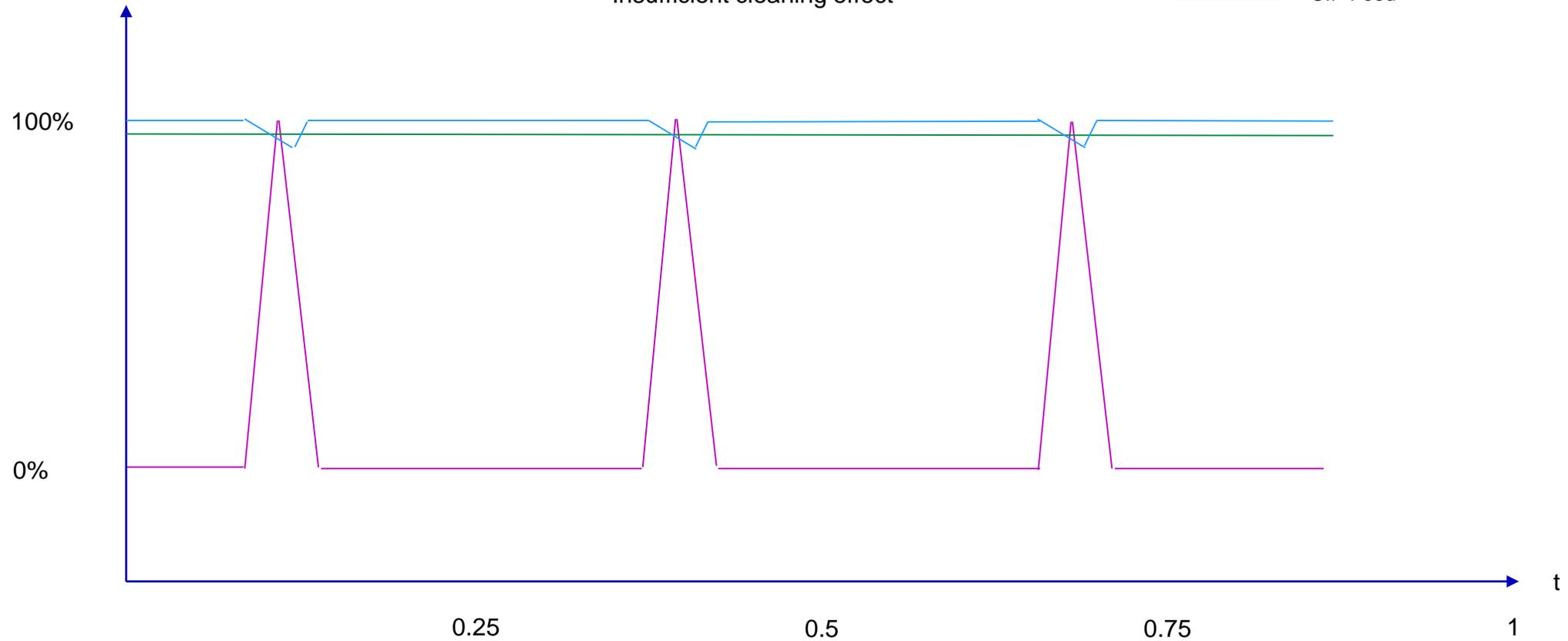


Hygienic Design

Effective removal of deposits – Partial Ejections

- + No feed interruptions
- + Short cleaning sequence
- + Low CIP media losses
- Insufficient cleaning effect

Ejection
Bowl rpm
CIP Feed

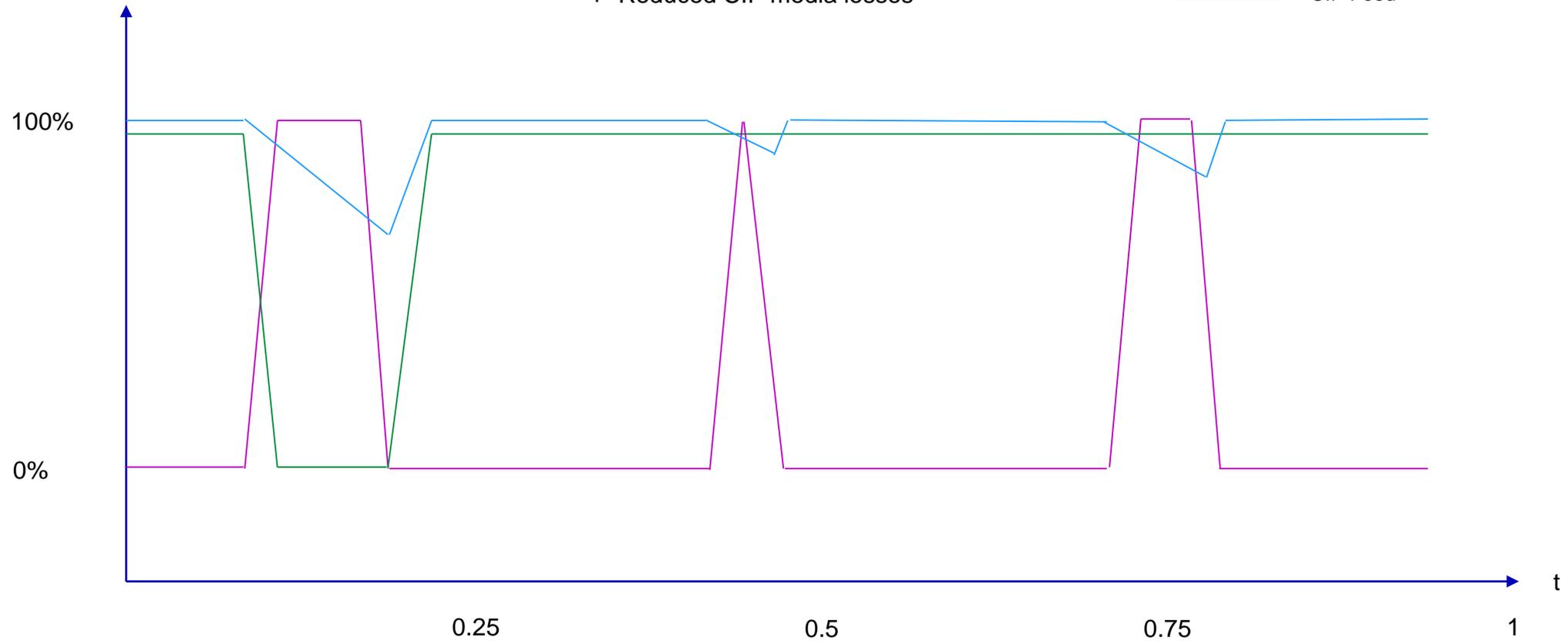


Hygienic Design

Effective removal of deposits – Ejections on demand

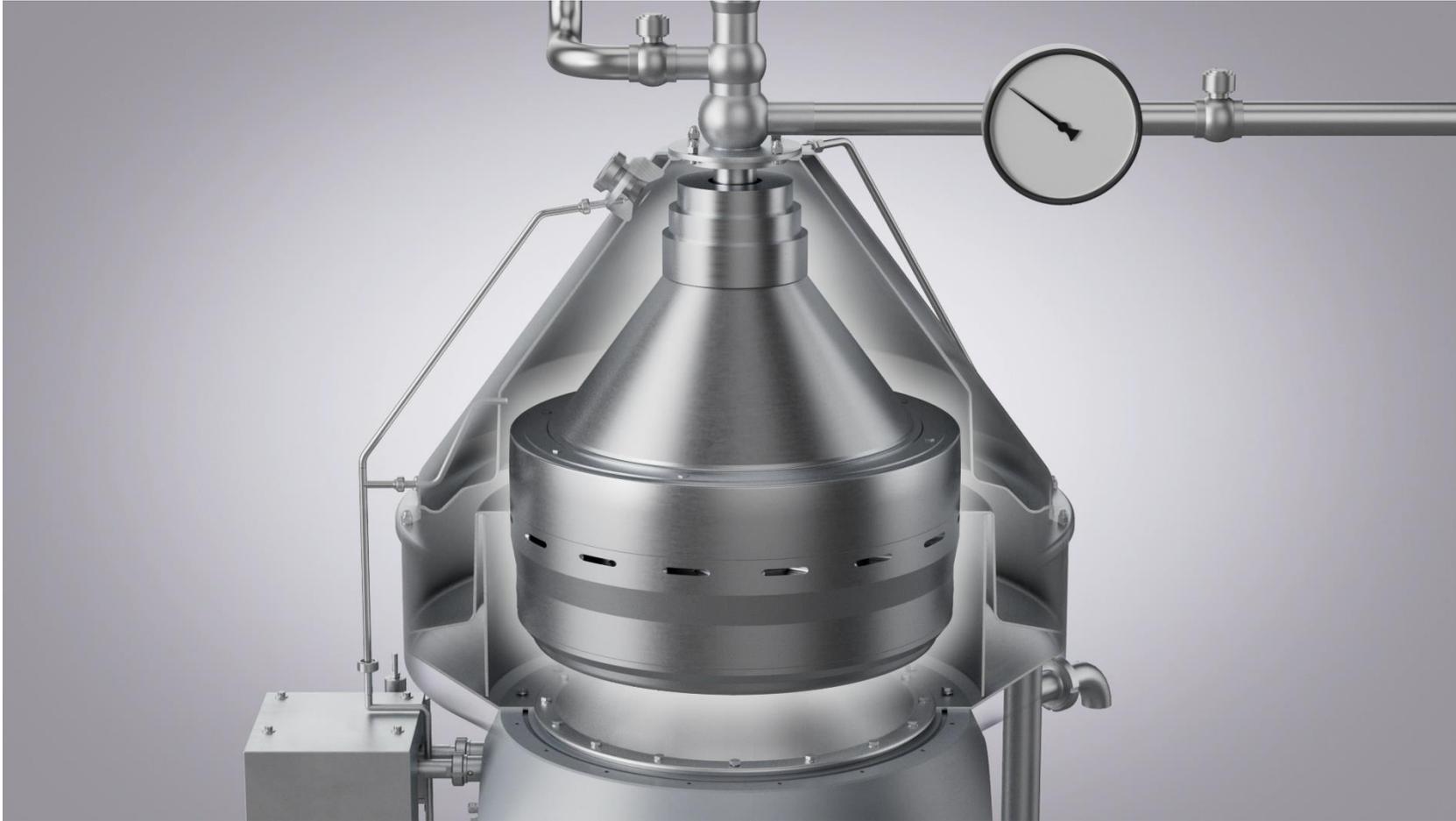
- + Good cleaning effect
- + Reduced feed interruptions
- + Shortened cleaning sequence
- + Reduced CIP media losses

- Ejection
- Bowl rpm
- CIP Feed



Hygienic Design

Effective removal of deposits – Even from outer bowl surface



Design to Clean: Creating a Hygiene focused Culture

Hygienic Design

Facilitate steady cleaning media quality

Hygienic Design

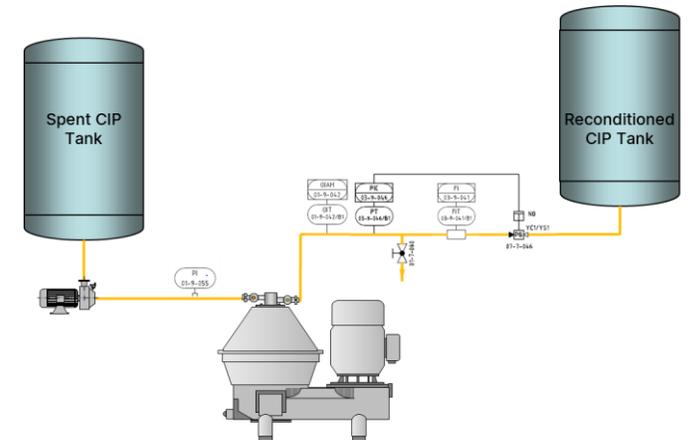
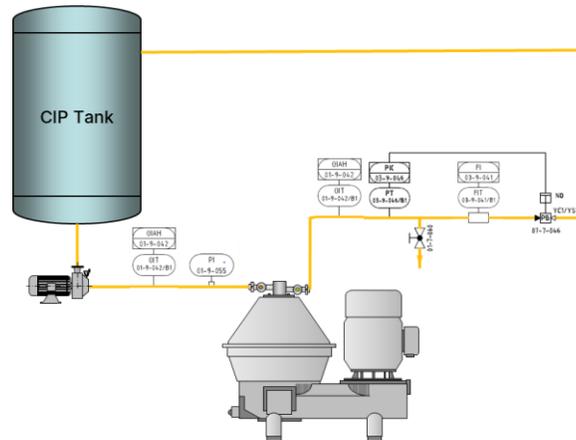
Facilitate steady cleaning media quality

Removal of undissolved solids either by crossflow filtration or centrifugation

- Improved and steady cleaning media quality
- Better CIP efficiency
- Savings in cleaning agents, water and energy

- Integration in a bypass
- Smaller unit feasible
- Continuous operation for best results

- In-line integration
- Larger unit required
- Intermediate operation during CIP cycles



Design to Clean: Creating a Hygiene focused Culture

Last but not
least...

Last but not least...

... our first virtual certification audit in 2020!



Design to Clean: Creating a Hygiene focused Culture



Improving Sanitation Efficiency by Design

GEA Engineering
for a better
world.

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