Designing for the Customer's Hygienic Applications

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Understanding the Customer Need…

- Products to be run through pump
  - Temperatures that are used during
  - pH of the processing and cleaning
  - Total Chlorides in product
  - Fiber and/or Particle size
  - Viscosity of the product

Understanding the Customer Need…

- Cleaning chemicals and process
  - Temperatures that are used during cleaning
  - pH of the processing and cleaning
  - Total Chlorides in cleaning chemicals
  - Total Sulfides in cleaning chemicals

Materials of Construction

- Materials are chosen to fit the need of the customer and the process.
  - Adjustments in the product contact materials can make a large gain in reliability of the pump in many processes.
  - Elastomers can be chosen to meet the chemical and temperature requirement of the customer's process
  - Optional materials can be used on non-product contact areas to meet the customer requirements for corrosion resistance.

Seals

- Seal types are available to meet all customer requirements and have the design has been driven by customer needs in the field.
  - Specific confectionary seals including a specific mechanical seal to maximize the life and cleanability of the seal in high sugar or granular processes.
  - Seal materials that are resistant to chemical attack to maximize seal life in highly variable pH processes.
  - Seal design that allows for a highly cleanable pump.

Pump Body Design

- Customer requests and processes have help adjust the pump body design to allow for better cleaning and sanitation.
  - Elimination of dead space in the pumps
  - Maximization of velocity around areas that are tough to clean.
  - Ability of the pump body to drain when in the properly installed position.

Industry Experiences

- Dairy Industry
  - Cheese Making
    - High Chloride Products
      - Goals: Make the metal parts of the pumps more resistant to chloride attack
      - Solutions: Usage of a different alloy throughout the product contact parts of the pump to maximize the life of the pump.

Industry Experiences

- Dairy Industry
  - Yogurt Making
    - Fruit Transfer
      - Goals: Enhance the capability of the pump to CIP small seeds from berries.
      - Solutions: Usage of a different design in the seal and cover areas to allow for CIP ability of the pump.

Industry Experiences

- Dairy Industry
  - Cream Transfer in New Zealand
    - Cream Receiving
      - Goals: Enhance the capability of the pump to CIP small seeds from berries.
      - Solutions: Usage of a different design in the seal and cover areas to allow for CIP ability of the pump.

Industry Experiences

- Food Industry
  - Candy Making
    - Caramel Transfer
      - Goals: Enhance the capability of the pump to transfer high sugar caramel with a sanitary mechanical seal.
      - Solutions: Usage of a different design in the seal geometry to allow for a better “cutting” of the high sugar product that allowed for the seal lubricant to “wash away” the product on the seal.