FCCU Slurry Pump Selection

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FCCU Slurry Pump Selection

Factors that impact slurry pump selection

- Abrasiveness of different applications
- Impact of operating off the best operating point of a pump
- Impact of operating the plant to get the best pump life
- Different pump designs and material choices available
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Abrasiveness of different applications

- Type of solids: Hardness, Size, and Shape
- Fluid velocity through the pump
- Solids percentage
- Temperature of the application
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Impact of operating off the best operating point

Typically Pumps want to operate at BEP between 75% and 110%

Slurry Pumps should operate as close to BEP as possible. Eddies created at non-BEP flows drastically increase erosion.
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Impact of solids within a pump.

- High percentage of solids through a pump at the BEP flowrate.

- Even at BEP solids impact the metal walls as they change direction.

- Heavier solids cyclone out hitting the pump walls at steeper angles and higher forces increasing wear.
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Typical FCCU Slurry Pump Around

Main Column Bottoms Pump

Product Pump
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Impact of operating the plant to get the best pump life

- Flow rate of pumps based on achieving the proper heat removal rate for the process

- Consider selecting a better slurry pump design allowing reasonable life at alternative flow rates

- Erosion resistant metals like high chrome iron have been proven to outlast alternatives often by four times.
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Different pump designs and material choices available

HPX/HNN - API 610 pump with hard coating

HPX6000 - API 610 pump with full hard metal liners designed for slurry service

Aftermarket Replacement - API 610 pump with partial hard metal liners and coated diffuser
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Heavy Slurry Pump Design

**Inherent safety** “Pump within a pump”
Outer pressure casing fully protected from erosive wear

**High chrome iron liners and impeller** for excellent abrasion resistance available in thermal shock resistant high chrome iron (SR-250®)

**Modular design** allows pump internals to be replaced with new hydraulics without impacting the outer pressure casing

**True slurry impeller design** with repelling vanes at front & back prevent slurry recirculation
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HPX6000 – High Percentage Slurry Example

Suction Side

Mechanical Seal Side
Thank you!

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