Metso

Slurry handling

Milk of lime dosing valve



Engineered for performance in the toughest slurry conditions.

Slurry handling

A purpose-built solution engineered to deliver reliable, low-maintenance performance in abrasive and scaling lime slurry applications, ensuring longer service life, safer operation, and consistent process control.

Milk of lime is a common slurry used across multiple industries to raise pH levels. Despite its versatility, it presents some of the most demanding process challenges for valves and pipelines.

Challenge

Milk of lime is notoriously difficult to manage due to its physical and chemical characteristics:

Scale formation - Occurs around valve internals and flow discontinuities, causing seizing and seat leakage.

High wear rates - $CaCO_3$ particles remain undissolved (only 12% solubility) and must stay in suspension at high velocities. The sharp, angular particles cause severe abrasion on conventional valve materials.

Plants require a valve that can withstand these conditions without compromising reliability or uptime.



Applications

- **Drinking water treatment** - Colour control, pH modification, and coagulation/settling aid
- **Mineral processing** - pH control for gold leaching, flotation enhancement, precipitation
- **Desalination plants** - Final pH modification
- **Coal power stations** - Flue gas desulphurisation
- **Wastewater treatment** - Heavy metal precipitation and coagulation/settling aid.

The process needed

To ensure optimal plant performance, valves handling milk of lime must:

- Feature an efficient internal flow path to minimise wear
- Reduce downtime with fast, easy maintenance
- Maintain sealing integrity even with solids present

Benefits

- Lower maintenance costs
- Reduced downtime
- Consistent pH control
- Reliable, long-term operation

The Metso solution

Key features

- **Smooth full port design** - Minimizes turbulence, scale formation, and wear.
- **Self-sealing with solids** - Ensures reliable shutoff, even with solids on the seat.
- **Double pinch closure** - Reduces sleeve stretch and doubles wear resistance.
- **Patented "Fast Sleeve Change" system** - Cuts maintenance time dramatically.
- **Flexible sleeve action** - Cracks off scale during operation for self-cleaning and consistent performance.
- **High-speed actuator** - Minimises time spent at partial openings (typically the highest wear zone).
- **Specialised "LM" sleeve compound** - Lime rubber blend developed and optimised through extensive site trials for maximum durability.

Control method

For milk of lime service (Lechada de Cal), an on/off control method is recommended to achieve maximum sleeve life

- **On/off mode** - Keeps the sleeve fully open or closed, avoiding wear at mid-positions.
- **Modulating control (if required)** - Operate around 60% open for an optimal balance between control precision and wear reduction.





Technical specifications

Connections
- Flanged preferred (DIN, SABS, ANSI, BS, Table D & E)
- Typically one size larger than the pipeline

Materials of construction
- Carbon Steel or Ductile Iron (lime-resistant, passivating materials)

Size range
- 25 mm (1") to 500 mm (20")
- Pressure rating up to 40 bar

Actuation options
- Double-acting pneumatic
- Spring-to-open/close pneumatic
- Manual handwheel
- Electric
- Hydraulic
- Electro-hydraulic

Positioners & control protocols
- Metso brand or any major international brand supported
- Compatible with Profibus, Modbus, and all standard industrial protocol

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