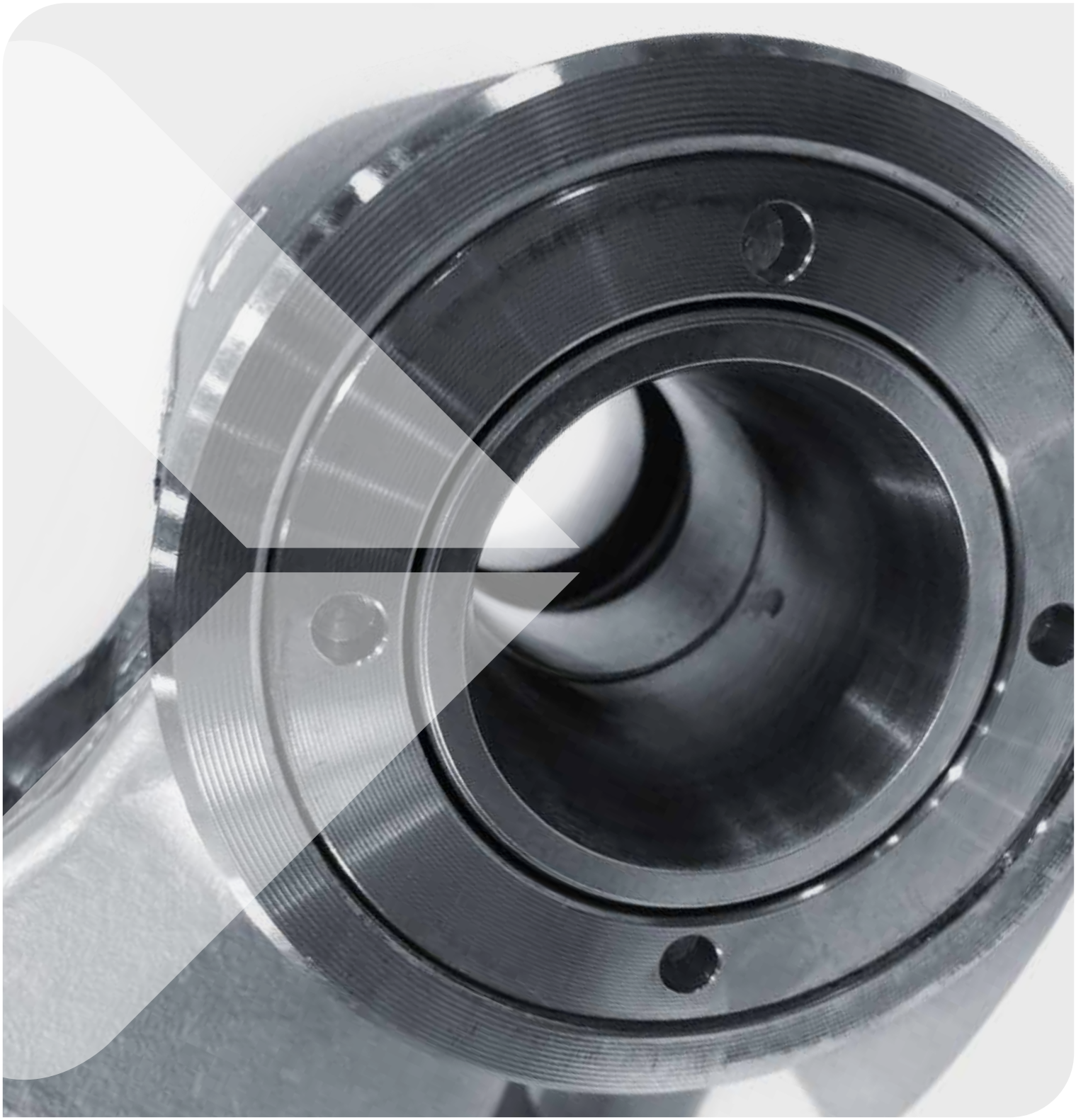
Eliminating erosion starts from the inside

Neles™ WearBlock™ solutions



Extend valve life in the most wear-intensive applications

Wear by erosion, corrosion or abrasion is a silent killer in processes where media flows through valves and pipes. As the effects of wear mount up, so can costs. Neles WearBlock solutions maximize reliability and uptime in wear-intensive applications.

Neles™ valves equipped with WearBlock™ solutions have been proven to work in the most fierce operating conditions. Our unique Metal Matrix Composites (MMC) have surpassed all customer expectations, helping extend the effective operating life of valves where they once were subject to regular and frequent failure.

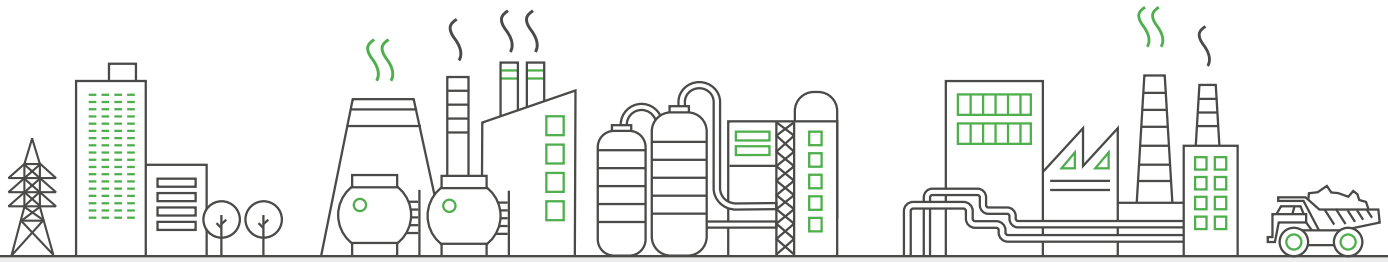
At the same time, these wear surface solutions are saving time and money by retaining optimal performance longer and extending service intervals considerably. An investment into superior wear protection is sure to pay itself back rapidly.

In addition to extending valve life and helping avoid expensive unplanned shutdowns resulting from catastrophic valve failure, the extended periods between planned and scheduled service shutdowns contributes to the optimized Total Cost of Ownership (TCO) of WearBlock valves. This wear-resistant design delivers a new level of durability, reliability, safety and long-term predictability.

Examples of where WearBlock improves valve durability:

- Lime mud control
- Kaolin control
- Carbonate handling
- Black liquor feed to burner
- Gypsum handling
- Cement production
- Metal slurries
- Acid leaching autoclaves
- Quench water control
- Catalyst regeneration
- Desulphurization units
- Fly ash removal
- FCC slurry oil control
- Recovery boiler
- Syngas scrubbers
- Ejector valves
- Black powder erosion

...and many more



For the most demanding applications in a wide variety of industries:

→ Mining & minerals → Oil & gas → Pulp, paper & bioproducts → Biofuel & renewable energy → Power generation

Solid WearBlock armoring

Unbreakable bond between valve construction and MMC wear protection material

- Advanced powder metallurgy used to bind two materials together
- Allows for thicker layer of metal matrix composite (MMC) wear protection on the wear surface. More robust than a coating.
- No open seams or weld-clad defects that are known for risk of fracture and failure
- Optimized performance meets extended service life for valves in demanding applications

Eliminating the risks of weak welds completely.

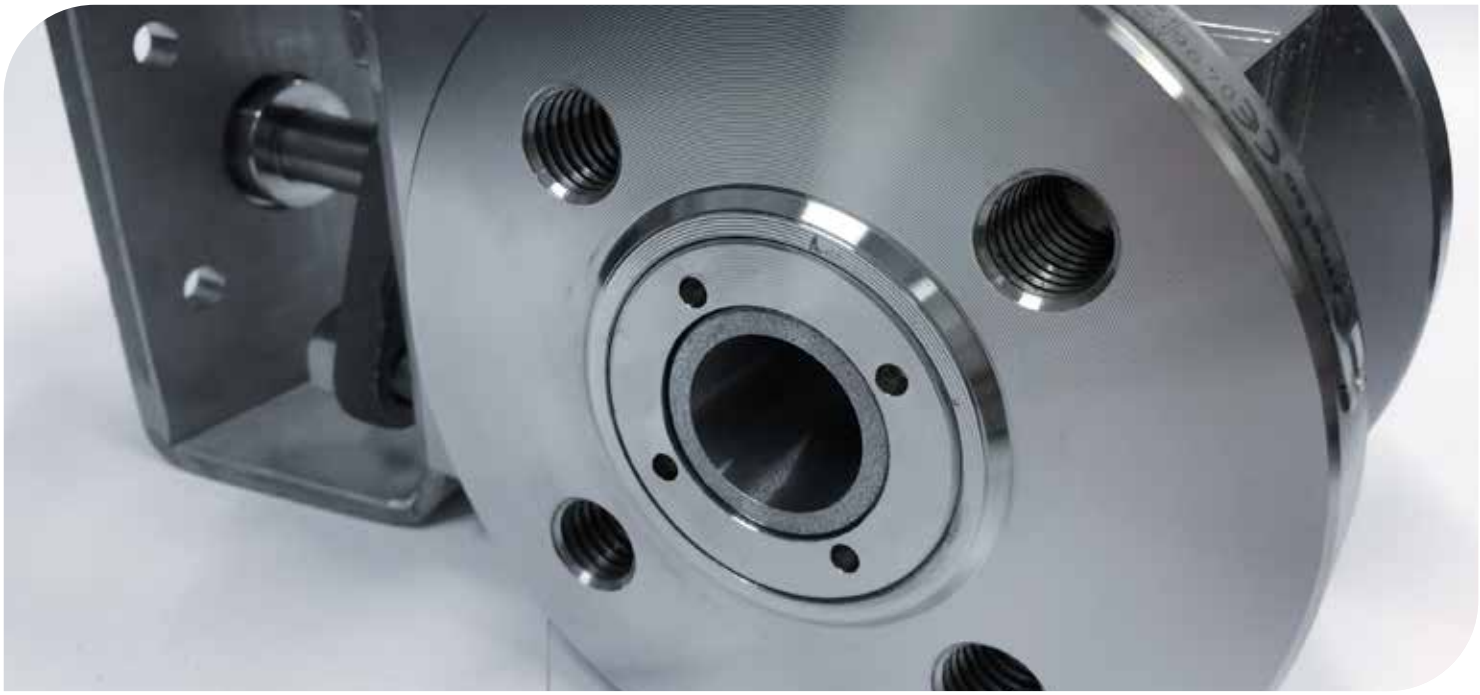
Case: Extending valve life in handling of catalyst fines

Challenge

Heavy erosion caused by blow-out of catalyst fines (+200 C) resulted in the failure of the original steel valve bodies every 1-3 months.

Results

WearBlock valves with 5-15mm of MMC material on wear surface has helped extend valve life from 3 months to 25 months. Also, maintenance work and HSE risk situations have been reduced by >90%.



Changeable WearBlock inserts

Unique Metal Matrix Composite (MMC) inserts that widen the application range of E-series ball valves

- Metal matrix composites combine the hardness of ceramics with toughness of metals
- Improves on ceramics in terms of hydrothermal degradation, resistance to thermal shocks and electrical conductivity
- Safe and reliable alternative for ceramic inserts in ceramic ball valves
- Reliability and extended valve life contribute profitability in both continuous and batch type processes

Improving on the current industry standard.

Case: Smooth, long-lasting performance in autoclave applications

Challenge

Thermal shocks and hydrothermal degradation can initiate cracking of ceramic plugs and balls, especially when crystallizing medium or build-up of solids increase valve's operating torque, and the required load-bearing capacity of trim materials respectively.

Results

MMC parts lasted the entire scheduled 18-month period before replacement with no visible damage or decrease in performance.

WearBlock accessories – Protection beyond the valve

We offer a range of WearBlock pipeline parts to provide erosion protection in turbulent and erosive flow conditions. These cylindrical and cone-shaped segments are designed for use downstream of the control valve and utilize the same durable metal matrix composite (MMC) material as our WearBlock valves.

Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

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