



Devcon® Wear Guard™ Fine Load Protects Vertical Coal Mill from Severe Abrasion

The vertical coal mill in a coal power plant is used to pulverize coal into fine powder. The mill must utilize high heat in order to dry the coal to a temperature optimal for combustion. This vital piece of equipment is used to convert coal into high quality fuel. However, the vertical coal mill is subject to severe abrasion from the particulates being broken down in size and secondary abrasion, all at elevated temperatures.

Problem:

Fine coal dust at elevated temperatures of 150°C / 302°F caused severe abrasion of a vertical coal mill. Multiple components of the equipment suffered damaging wear, including the roller casing, coal chute, and roller bush. This customer had difficulty maintaining and protecting these pieces of equipment consequently reducing equipment efficiency. As a result, the customer was looking for a temperature and abrasion resistant wearing compound to protect the crucial equipment from further damage and increase productivity.

Solution:

To solve the maintenance challenges, Devcon Wear Guard Fine Load was applied to each equipment component.

- For surface preparation of the equipment components, each repair area was sandblasted to white metal and expandable metal was tack welded onto the surfaces, where needed.
- Devcon Wear Guard Fine Load was easily mixed by hand and applied in situ, eliminating the need to use bulk equipment or to move the equipment.
- Devcon Wear Guard Fine Load was applied at a thickness of 6 mm. At this thickness, it served as an effective temperature and abrasion resistance protective coating, on all the components of the vertical coal mill.



Coal Power Plant



Vertical coal mill



Surface preparation – abrading metal



Project Outcome:

Increased Plant Productivity

Devcon Wear Guard Fine Load was quick and easy to apply to the vertical coal mill equipment, and because it has a relatively short functional cure period, equipment maintenance and downtime was minimal reducing overall repair costs and increasing productivity.

Prolonged Useful Service Life

- Devcon Wear Guard Fine Load effectively protected the equipment components from the abrasive damage of coal dust and the high temperature operating conditions.
- The customer will also be able to reapply the material as it wears, further extending the useful life of the vertical coal mill.

Strong Temperature Resistance

- Coal plant equipment is exposed to exceptionally high heat due to processes such as steaming and combustion that contributes to wear and a reduction in equipment life.
- Devcon Wear Guard Fine Load can withstand extreme environments with temperature resistance up to 60°C / 140°F in wet environments and 150°C / 302°F in dry environments, proving this product's ability to withstand the severe environment at a coal plant.



Vertical coal mill coal chute



Vertical coal mill roller bush

Devcon Wear Guard Fine Load is proven to provide abrasion resistance to equipment handling materials resulting in increased uptime and productivity. Use it to protect processing equipment such as chutes, cyclones, and launderers.

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