

APPLICATION REPORT

COAL MILL-2 CLASSIFIER ROOF CASING (OUTLET DUCT) COATING



AT

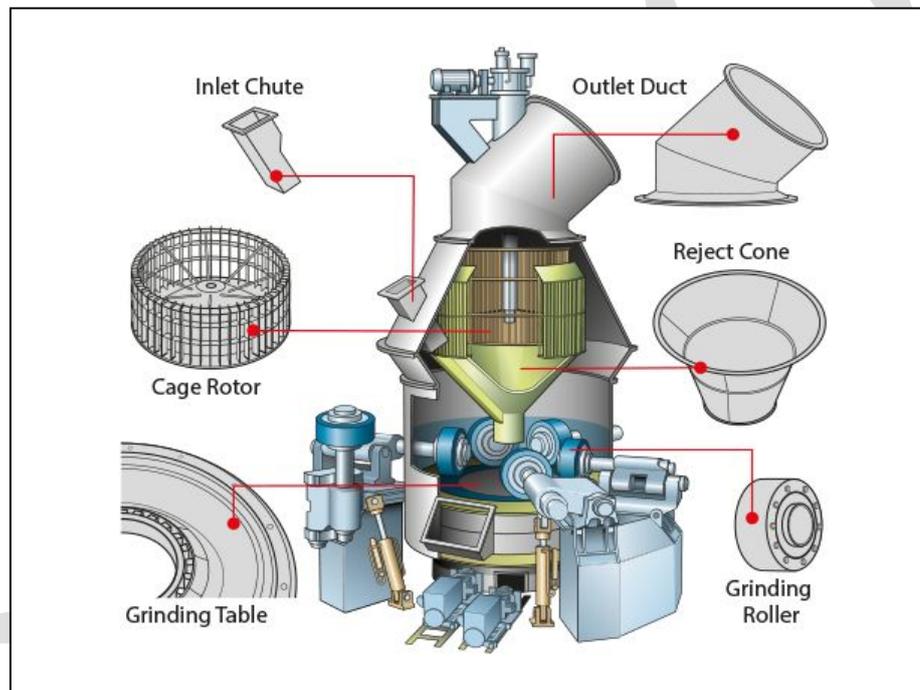
**BHARATHI CEMENT CORPORATION
PRIVATE LIMITED,
NALLALINGAYAPALLI, KADAPA (A.P.)**

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LTD successfully completed job work for coating of CLASSIFIER ROOF CASING (OUTLET DUCT). This job work was carried out for our customer BHARATHI CEMENT CORPORATION PRIVATE LIMITED, KADAPA. Our customer were facing problem of high WEAR due to ABRASION. Coating was done with DIFF PRIME, DIFF SCREED, CERAMETAL 2 & CERABEAD XTREME.

Coal is the largest source of energy and majorly used as a fuel in various industries like cement & power. In order to make full use of coal and to reduce the pollution in the environment, we usually crush the larger coal blocks into the coal powder by using coal mill or coal pulverizer.

As Coal is very abrasive in nature therefore during pulverization of coal heavy abrasion/erosion takes place in coal mill equipments. Compression and abrasion are the primary wear mechanisms that affect the grinding elements in a coal pulveriser.



Similar to the ring and ball mill, this mill uses large "tires" to crush the coal. These are usually found in utility plants. Raw coal is gravity-fed through a central feed pipe to the grinding table where it flows outwardly by centrifugal action and is ground between the rollers and table. The air mixes with and dries coal in the grinding zone and carries pulverized coal particles upward into a classifier.

Fine pulverized coal exits the outlet section through multiple discharge coal pipes leading to the burners, while oversized coal particles are rejected and returned to the grinding zone for further grinding. Mechanically, the vertical roller mill is categorized as an applied force mill. There are three grinding roller wheel assemblies in the mill grinding section, which are mounted on a loading frame. The fixed-axis roller in each roller wheel assembly rotates on a segmental-lined grinding table that is supported and driven by a planetary gear reducer direct-coupled to a motor. The grinding force for coal pulverization is applied by a loading frame. This frame is connected by vertical tension rods to three hydraulic cylinders secured to the mill foundation.

PROBLEMS:-

Customer was facing severe Abrasion problem in outlet duct. Severe abrasion took place during coal crushing or pulverizing and due to which lots of pits/holes developed in outlet duct. Coal itself has a property of hardness and it is abrasive material for the metallic equipments also. Several factors will influence the type and the severity of wear. The largest influences will be the quality of the coal being processed, the required capacity factor on the pulveriser, the mass flow rate, distribution, and resulting velocity profile around the bowl and pulveriser body and the orientation of the grinding elements relative to the velocity vectors.



PRODUCT RECOMMENDED:

DIFF-PRIME:-

Diff-Prime is a Two-pack polyamine cured epoxy priming surface tolerant compound incorporating a rust inhibitor and passivator.

DIFF-SCREED:-

Diff-Screed is high solid heavy duty solvent free polymeric resin for mortar screed and metal surfaces has been specially developed for providing high strength to floor and metal structures. **Diff-Screed** is two-component system, providing heavy duty flooring and has high mechanical strength, anti-skidding, non dusting and chemical resistance properties.

CERAMETAL 2:-

Cerametal 2 is a solvent free, fluid grade poly ceramic coating and surfacing compound for fluid flow environments. Easily applied by brush, it is the finest material available for repairing and preventing erosion/corrosion damage caused by fluid flow and entrained solids, impingement and bimetallic action. Specially formulated to resist abrasive erosion, it is virtually non-machinable even with carbide tipped tools.

CERABAED XTREME:-

Cerabead Xtreme is a tough composite material filled with ultra resilient, high strength to weight ratio special fiber, ceramic beads and ultra hard densely packed ceramic particles that outstands all material against erosive & pneumatic abrasive environment.

APPLICATION PROCEDURE:

A.SURFACE PREPARATION:-

1. Before application of any kind of coating surface preparation is must to activate the base metal so that coating will have better bonding.
2. The surface preparation was done by sand blasting.



Fig .Surface Preparation done by sand blasting

B.PRODUCT APPLICATION:-

- 1.)After surface preparation priming was done by **DIFF-PRIME**.



FIG: APPLICATION OF DIFF-PRIME

2.) After priming second coat was done by **DIFF-SCREED** to give for improved surface level and also filling up of pits.



FIG: APPLICATION OF DIFF-SCREED

3.) After DIFF-SCREED coat was done by **CERAMETAL 2**.

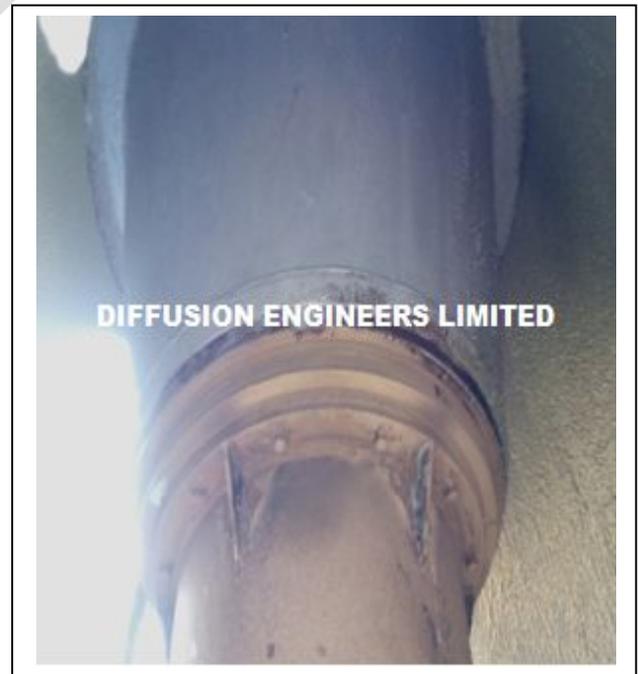


FIG: APPLICATION OF CERAMETAL 2

4.) Top coat was applied to give Abrasion resistance against **CERABEAD XTREME**.



FIG: APPLICATION OF CERABEAD XTREME

ACKNOWLEDGEMENT:-

SITE ENGINEER:-

Mr. Ashish Ganvir (Product Specialist)
Mr. R. Ravi Prasad (Sales Engineer)

AGENCIES INVOLVED: -

TSS Enterprises, Chennai

APPLICATION TEAM:-

Aman Yadav, Kileshwar Kohale, Baliram Bisen and Sanjeev Kushwaha



DIFFUSION ENGINEERS LIMITED

Regd. Office & Works I : T-5 & 6, M.I.D.C., Hingna Industrial Area, Nagpur - 440 016, Maharashtra, INDIA
[t] 091-7104-232084, 234727 [f] 091-7104-232085.

Works II : N-78 & 79, M.I.D.C., Hingna Industrial Area, Nagpur - 440 016, Maharashtra, INDIA, [t] 091-7104-236036

Works III : T-12, M.I.D.C., Hingna Industrial Area, Nagpur - 440 016, Maharashtra, INDIA, [t] 091-7104-232984

[e] info@diffusionengineers.com, [w] www.diffusionengineers.com

Branches At : Chennai • Faridabad • Jamshedpur • Pune • Raipur • Secunderabad • Vadodara