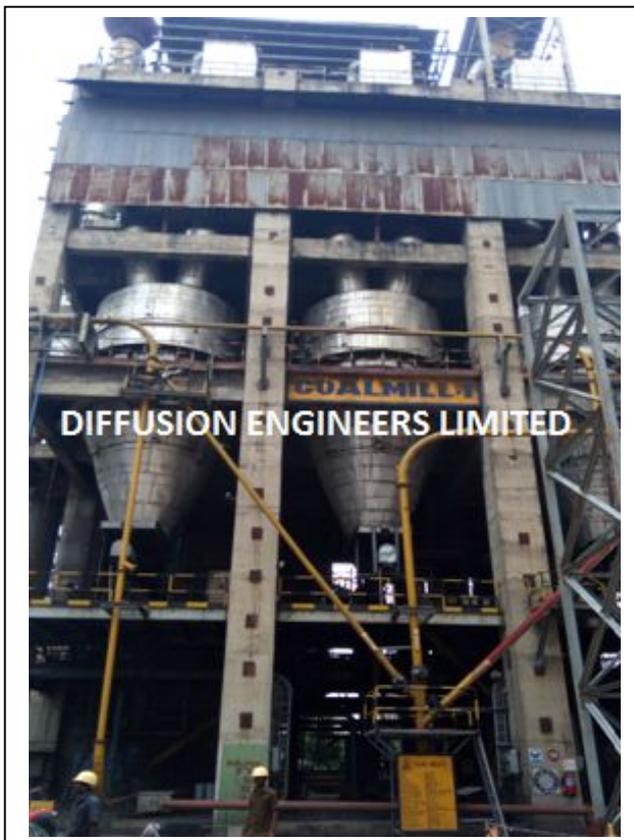


APPLICATION REPORT

COAL MILL BAG HOUSE COATING (BAG FILTER HOPPER AND CHAMBER)



AT
**THE RAMCO CEMENTS LIMITED
(MADRAS CEMENTS LTD.),
GOVINDAPURAM WORKS,
ARIYALUR**

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LTD successfully completed job work for coating of COAL MILL BAG HOUSE. This job work was carried out for our customer THE RAMCO CEMENTS LIMITED, ARIYALUR. Our customer were facing problem of high corrosion and Pitting in Coal mill bag house. Coating was done with DIFFGLASS XTREME.

Baghouses, also called fabric dust collectors or fabric filters, are air pollution control devices designed to use fabric filter tubes, envelopes, or cartridges to capture or separate dust and other particulate matter (PM). Their applications range from small household workplaces to large industrial facilities such as coal-fired power plants and cement plants.

Compared to other types of air pollution control (APC) equipment, baghouses are incredibly versatile and can be engineered for almost any dust producing application by varying size and bag types. They are very efficient when properly maintained and are also rugged enough to handle rough applications. However, they typically require a lot of maintenance and a relatively dry environment to operate effectively. Their use is also limited to certain operating temperatures and chemical conditions.

There are three different types of baghouse cleaning mechanisms; each offers its own advantages for different applications.

1. Reverse Air
2. Shaker
3. Pulse-Jet

Pulse-Jet

Pulse-jet (P/J) or reverse-jet baghouses use compressed streams of high pressure air to remove particulate matter. During cleaning, brief (0.1 second) pulses of air are pushed through the bag, dislodging solids which collect in a hopper below. The recommended air to cloth ratio for these baghouses is between 3.25:1 and 4.0:1.

Advantages:

- Cleaning mechanism allows P/J baghouses to be cleaned while the system is online.
- More complete cleaning than shaker or reverse air baghouses, lengthening bag life.
- Operates at lower pressure drops and with lower space requirements.

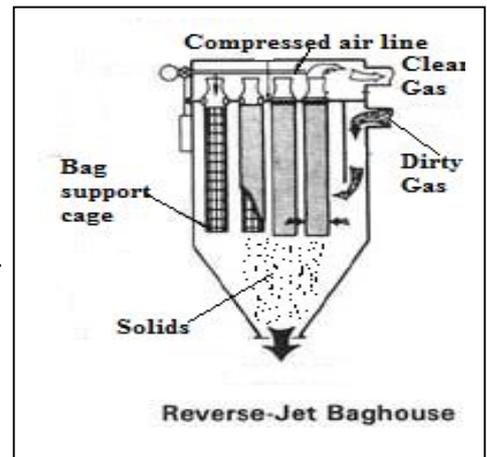
Disadvantages:

- Requires the use of dry compressed air.
- Requires special fabrics for higher temperatures.
- Cannot tolerate high moisture levels or humidity in exhaust gases.

Area: 850 Square meters

No. of Filter Hopper: 06 Nos.

No. of Bag House chamber: 02 Nos.



PROBLEMS:-

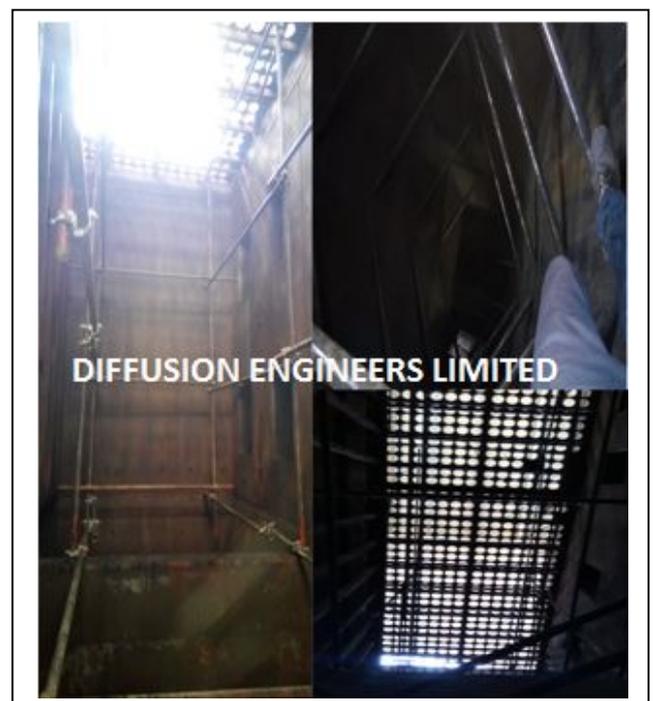
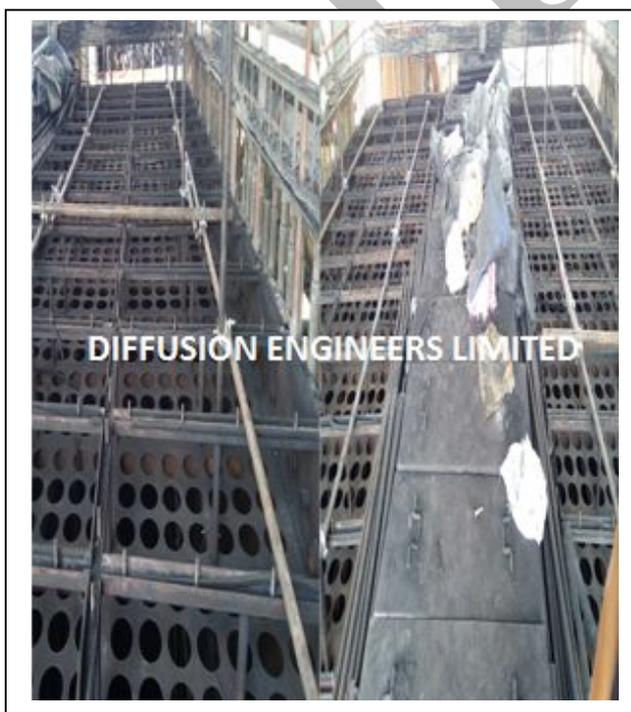
Customer was facing severe corrosion problem in bag house. i.e. Corrosion on the wall of bag house, Corrosion on the roof of the bag house Corrosion on the floor of bag house. Abrasion mainly happens when the flyash impinges on dry areas of the system, removing the thin layer of rust and exposing the steel to corrosion. This creates an abrasion/ corrosion vicious cycle. Corrosion takes place between dissimilar areas of metal where there are differences in electrochemical potential.

Corrosion causes plant shutdowns, a waste of valuable resources, loss or contamination of product, reduction in efficiency, costly maintenance. Corrosion on the wall of bag house, Corrosion on the roof of the bag house Corrosion on the floor of bag house

After a certain period, Pits start forming and due to pits leakage in base metal occurs. Sulphur ions- along with other Ions form concentric cells for Pits. Pit initiation already seen in RAMCO CEMENT. Bag House Corrosion rate of PITS is "UNPREDICTABLE" Ultimate result of PIT Leakage from the metal surface.

Operation: Baghouses consist of filter media (bags) suspended inside a housing or casing. Fans on the outside of the housing blow the dirty or polluted air through the filters, capturing the suspended particulate matter and solids on the bags and pushing clean air through the outlet. While filtering, a baghouse bag allows the formation of a layer of particulate matter on its surface, called a dust cake. This dust cake continues to build until the thickness reaches a level where flow is sufficiently restricted; at this point, the bags are cleaned. Cleaning can be done during operation or offline depending on the type of baghouse

As air is filtered through the baghouse, the dust cake on the bag filters continually thickens. For most bag fabrics (those without a membrane coating), the cake is what does most of the filtering of the particulate matter in the air stream. A thicker dust cake increases both collection efficiency and pressure drop as the pathways through the bag become finer and also more restrictive. Cleaning mechanisms must find the right balance for this tradeoff - too thorough or frequent cleaning results in a lower collection efficiency and possibly reduce bag life, but insufficient cleaning will cause excessive energy requirements for blower fans (i.e. high pressure drops)



PRODUCT RECOMMENDED:

DIFFGLASS XTREME:-

DIFFGLASS XTREME , a heavy-duty lining system for concrete and steel substrates that offers unique combination of vinyl ester novolac resin with Glassflake reinforcement and inert mineral fillers produce a dimensionally stable coating with extremely low permeability and ideally suited for immersion service ,splash/spillage exposure of concentrated acids and aggressive solvents.

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. Before started blasting work removed Bab fillter from inside bag house.
3. After manual cleaning, surface was cleaned by grit blasting to remove all loose particles. As per ISO standard surface prepration of SA 2 1/2 by blasting with surface profile achives of 70-90 microns.

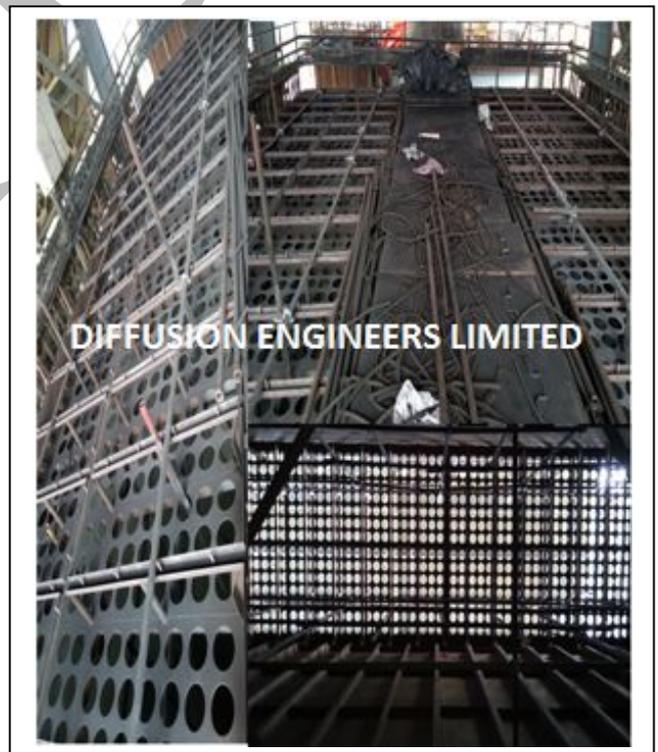
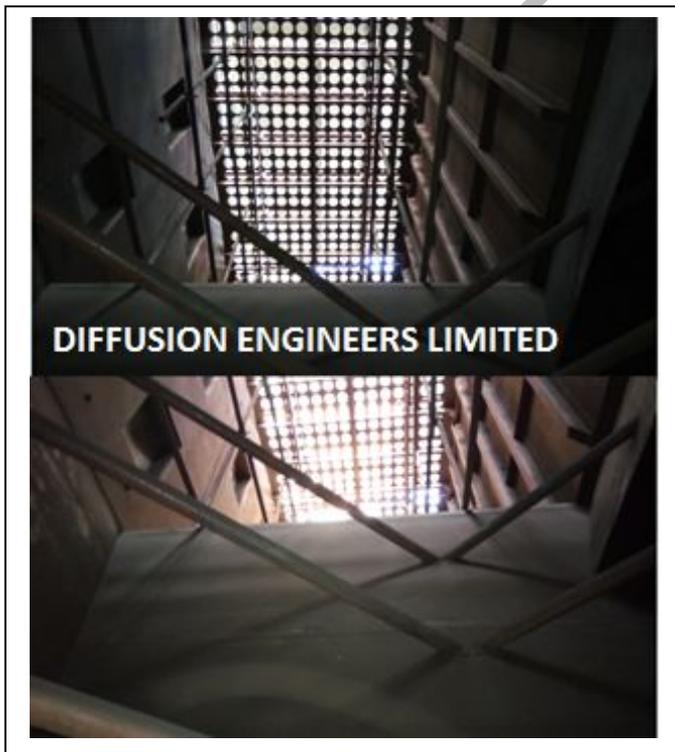


Fig .Surface Preparation done by Abrasive grit Blasting

B.PRODUCT APPLICATION:-

1.)After surface preparation priming was done by **DIFFGLASS XTREME**.



2) Top coat of to give corrosion resistance against DIFFGLASS XTREME was applied.



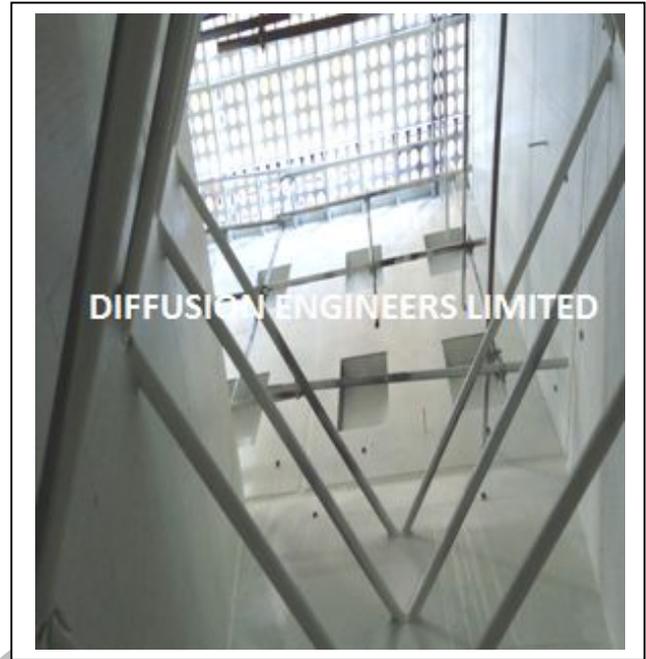
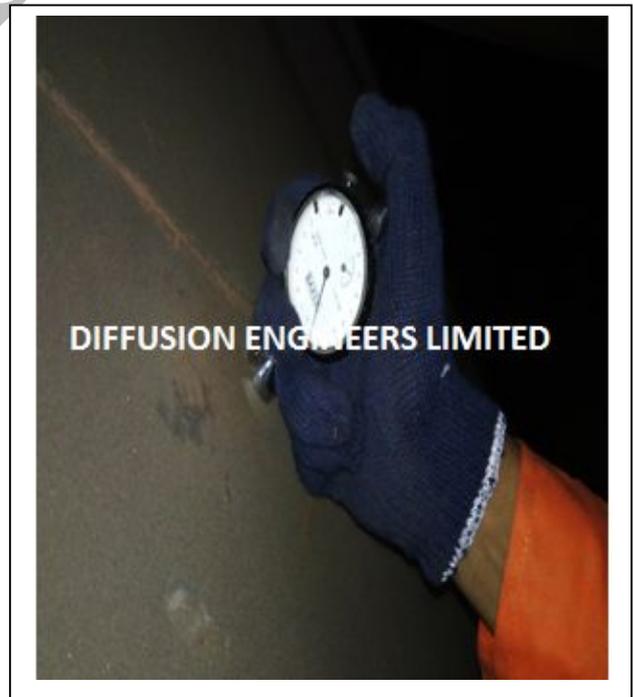


FIG: APPLICATION OF DIFFGLASS XTREME

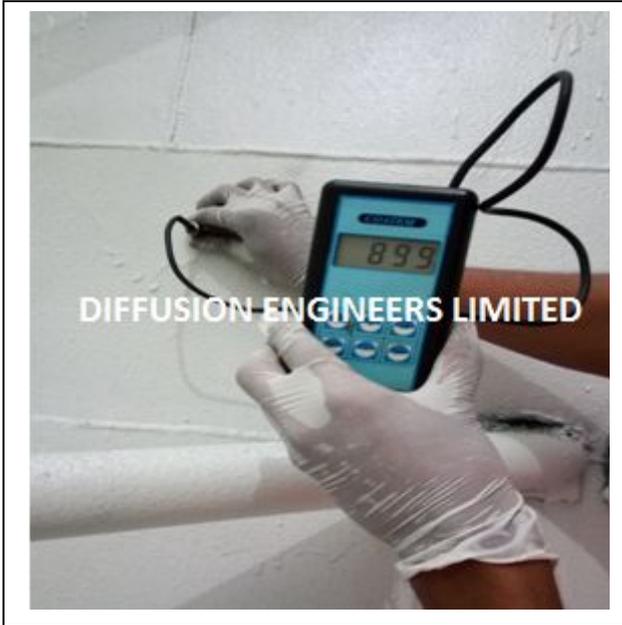
BLASTING AND COATING INSPECTION:

- 1. Surface profile:** Range: 75-90 (Microns)



BLASTED SURFACE MESURMENT by Profile Gauge

2. DRY FILM THICKNESS :- Range: 750-900 (Microns)



DFT MESURMENT by DFT Meter

ACKNOWLEDGEMENT:-

SITE ENGINEER:-

Mr. Ashish Ganvir (Product Specialist)

Mr. Dinesh Rajagopal (Sales Engineer)

AGENCIES INVOLVED: -

Weldbase Technologies, Tirucharappalli

APPLICATION TEAM:-

Pradeep Maurya, Aman Yadav and Baliram Bisen



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

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