

# CASE STUDY ON GEOCYCLE SHREDDER SCREW



AT  
**AMBUJA CEMENT LIMITED,**  
MCW  
**GADCHANDUR**

Submitted by

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## INTRODUCTION :

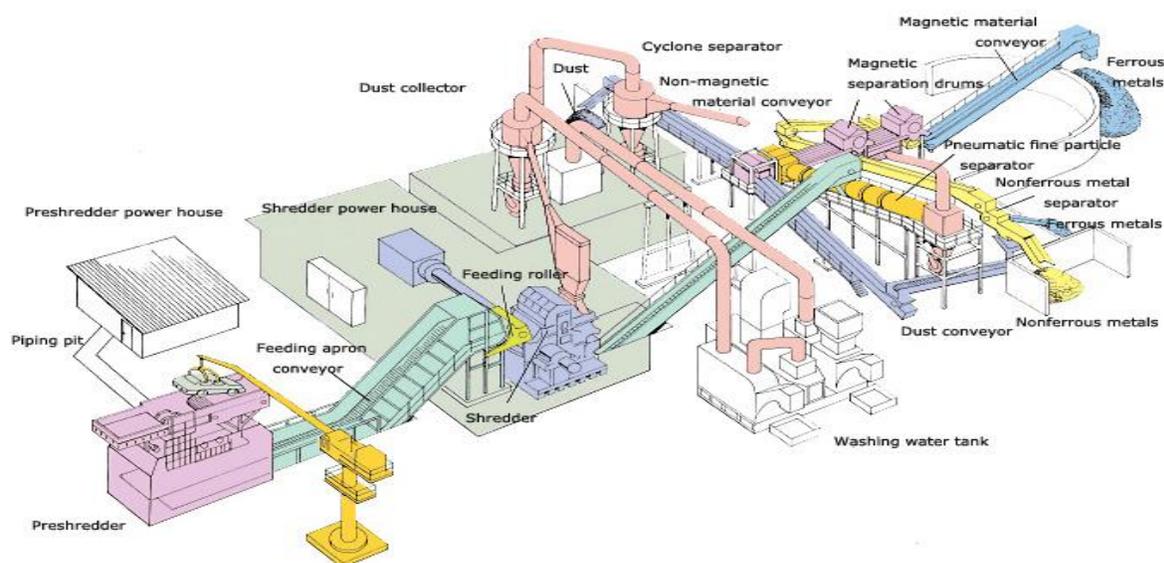
**GEOCYCLE SHREDDER PLANT** crushes and sorts scrap cars, city garbage, old home appliances, industrial waste and other bulk waste to efficiently recover high purity, high density and uniform granular iron and nonferrous metals. The plant can even accept steel turnings and bushellings. Environmental protection and safety measures have been also taken into account in the plant design.

By roughly-crushing various scraps in advance, the pre-shredder backs up the shredder operation. Allows the shredder to easily handle pressed scrap bodies and vehicles with wheels and engines. Helps stabilize the operating load of the shredder. Improves the throughput. Reduces the power consumption. Ensures longer life of shredder consumables including hammers and liners. Provides explosion prevention and other safety measures.

### **MECHANICAL FEATURES OF THE SHREDDER:-**

1. Bulk waste such as scrap cars, city garbage, old home appliances and industrial waste is first roughly-crushed by a "pre-shredder".
2. Adjusting the compressing blades will easily change the throughput and crushing size.
3. The mechanism is applied with less impact since a hydraulic pump and a torque motor is used for driving.
4. Stably operates with automatic control.

### **Shredder Plant paves the way for recycling of waste materials**



**PROBLEM FACING :-** Due to the shredding of various kinds of solid wastes and sludge the knife of the shaft were getting weared Heavily.

**TECHNICAL DETAILS :-**

Equipment : Geocycle ,Shredder Screw  
M.O.C. : Alloy Steel  
Wear Factor : Abrasion , Impact, Friction and Corrosion.  
Make : Metso (Germany)  
Model : V625, H1&2 Mpregnation Shredder  
Capacity : 250 Cubic meter/hrs

**Fig: Before**



**Fig: After Refurbishment**



## ALLOYS USED:-

- Super gouge
- Diffusaloy 618
- Xaloy 52
- Abraloy300

Fatigue Material is removed using SUPERGOUGE



**DIFFUSALOY 618**:- A Low heat input joining electrode used to join manganese steel to manganese steel and Mn steel to Other steels.  
TS- 65kgf/mm<sup>2</sup>.

Base Layer of joining is with Diffusaloy 618



**XALOY 52** :- A low temp electrode used for overlay, build up and cushioning low ,mdium carbon steels and maganese steels.  
Hardness- 45-50 RC

Build up done using Xaloy 52



**ABRALOY 300** :- A High alloys chromium iron type of electrode to resist high abrasion and moderate impact. Hardness: 57-60 HRC

Hard facing is done with Abraloy300 on the Tip of the knife and both side faces of the knife.



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