



**Excel Craft Private Limited**

**WELDING DIVISION**

# CASE STUDY OF 3.6 TON CHISEL

**CUSTOMER** : **SIMPLEX INFRASTRUCTURES LIMITED**  
**Date** : **21/07/2020 to 6/08/2020**  
**REPAIRED BY** : **EXCEL CRAFT PVT LTD - WELDING DIVISION,**  
**BENGALURU-560099**

**POCO**  
64MP QUAD CAMERA



# COMPANY PROFILE

## Simplex Infrastructure Pvt. Ltd



### Simplex Infrastructure Pvt Ltd,

- ▶ Simplex Infrastructures Ltd. is a diversified company established in 1924 and executing projects in several sectors like Transport, Energy & Power, Mining, Buildings, Marine, Real Estate etc.
- ▶ Simplex is one of the construction leaders in India for nearly 90 years executing projects with consistent quality assurance, cost control and adherence to milestones in a safe environment as per the customer requirements.

## Excel Craft (P) Ltd



- ▶ **Excel Craft (P) Ltd, -Welding Division** has set up the most modern facilities in Bommasandra, Bangalore and it is a part of **Excel Craft (P) Ltd**, with its head quarter in Mumbai, which has got several interest in various industries.
- ▶ Senior experts in the field of manufacturing and marketing of welding consumable with several years of experience are associated with the organization. We also specializes for manufacturing of welding consumable for steel plant, Thermal power station, Sugar, Cement, Forging and construction equipment



# PROBLEM STATEMENT



## DAMAGED CHIESEL AT EXCEL CRAFT WORKS

### Function:

### Photo:1 & 2

As the name indicates, the component is a part of the rock breaking machine usually used for underground mining. Our Customer Simplex Infrastructure Limited, is the major contractor for building the civil structure for metro rail in Bengaluru. The foundation of the metro goes as deep as 15-20meter underground. For building the foundation for metro Simplex has to Evacuate over burden from the ground. In This process there are lot of hard rocks available underground which are to be broken into pieces. This equipment is used for breaking the hard rocks underground. The chisel shown in the photograph weighs 3.6 ton, & this is dropped from a considerable height on to the bid rocks to break it into pcs. Therafter smaller rock pcs are transported to the surface level using dumpers & dozers. The Chisel is damaged in this process and hence needs to be brought back into shape & size.



# A VIEW OF CHISEL AFTER REMOVAL OF FRONT PLATE



REMOVED WORN OUT EDGE



DAMAGED CHIESEL Photo:4

DAMAGED CHIESEL Photo:3

Chisel is a component used to break the underground rocks & makes the hole in underground to build a Metro Pillar foundation.

1. In this process the Chisel component is break the underground rocks.
2. The Chisel is dropped to underground from certain height.
3. Since the rock will be very hard, over a period of time the front plate of Chisels gets worn out.



## **METARIAL ANALYSIS OF CHISEL**

|                          |  |
|--------------------------|--|
| <b>COMPONENT</b>         | <b>: CHISEL.</b>   |
| <b>MATERIAL</b>          | <b>: IS 2062-HOT ROLLED MEDIUM &amp; HIGH TENSILE STRUCTURAL STEEL</b> |
| <b>COMPOSITION</b>       | <b>: C 0.22, Si 0.4, Mn 1.5, S 0.045, P 0.045.</b>                     |
| <b>WEIGHT OF CHIESEL</b> | <b>: 3.6 Tons.</b>   |
| <b>PRODUCTS USED</b>     | <b>: AIR ARC GOUGING , MEDIOCARB 7018, HARDALLOY 650.</b>              |



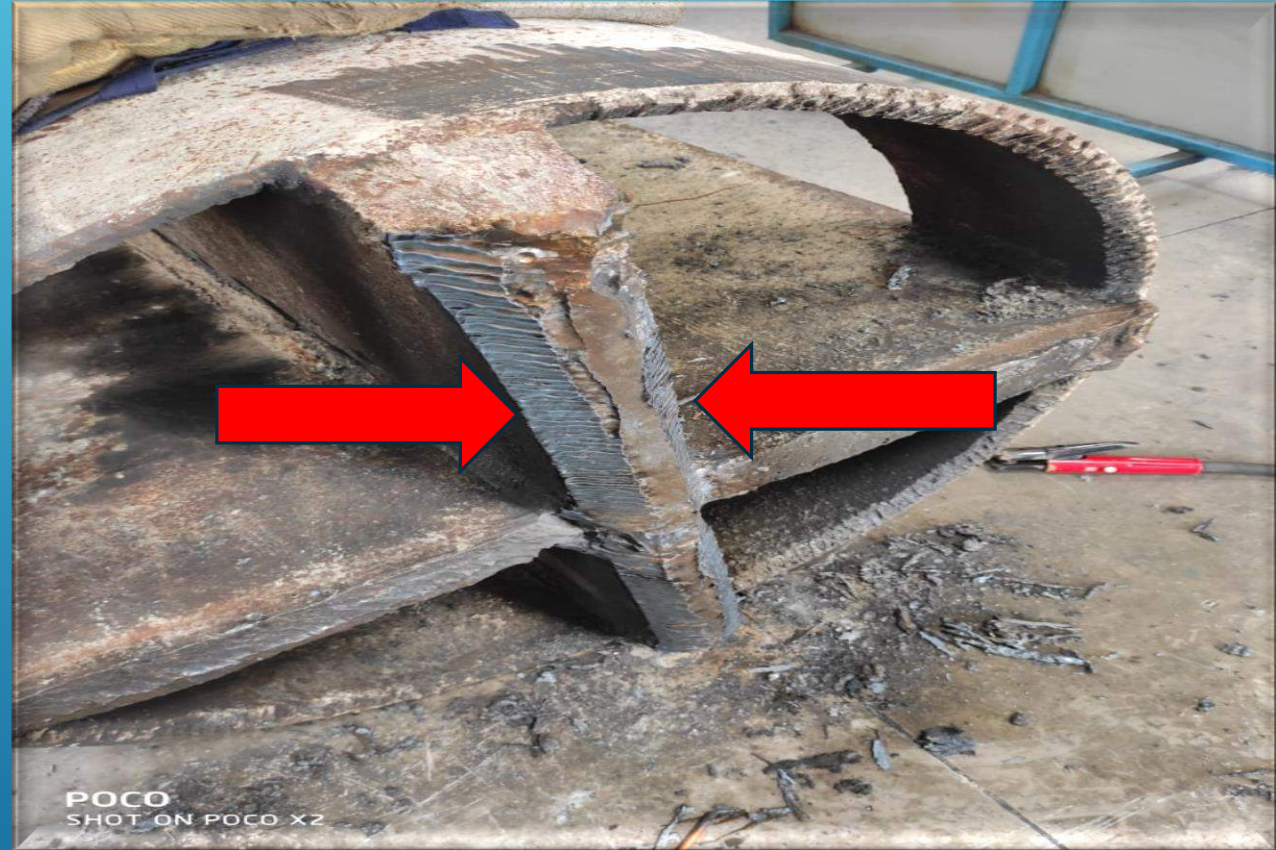
**REPAIR IN PROGRESS Photo: 5**



## PROCEDURE FOLLOWED TO CARRY OUT THE JOB BY EXCEL CRAFT AT BANGALORE WORKS

### Gouging:

- All damaged plates were marked and cut the plate (100 MM) by air arc gouging using 8.00 MM copper coated graphite rod,.
- Gouging is the fastest method to cut the plate of 100 MM with accuracy. Excel Craft have highly skilled people & a good knowledge bank to execute such jobs.



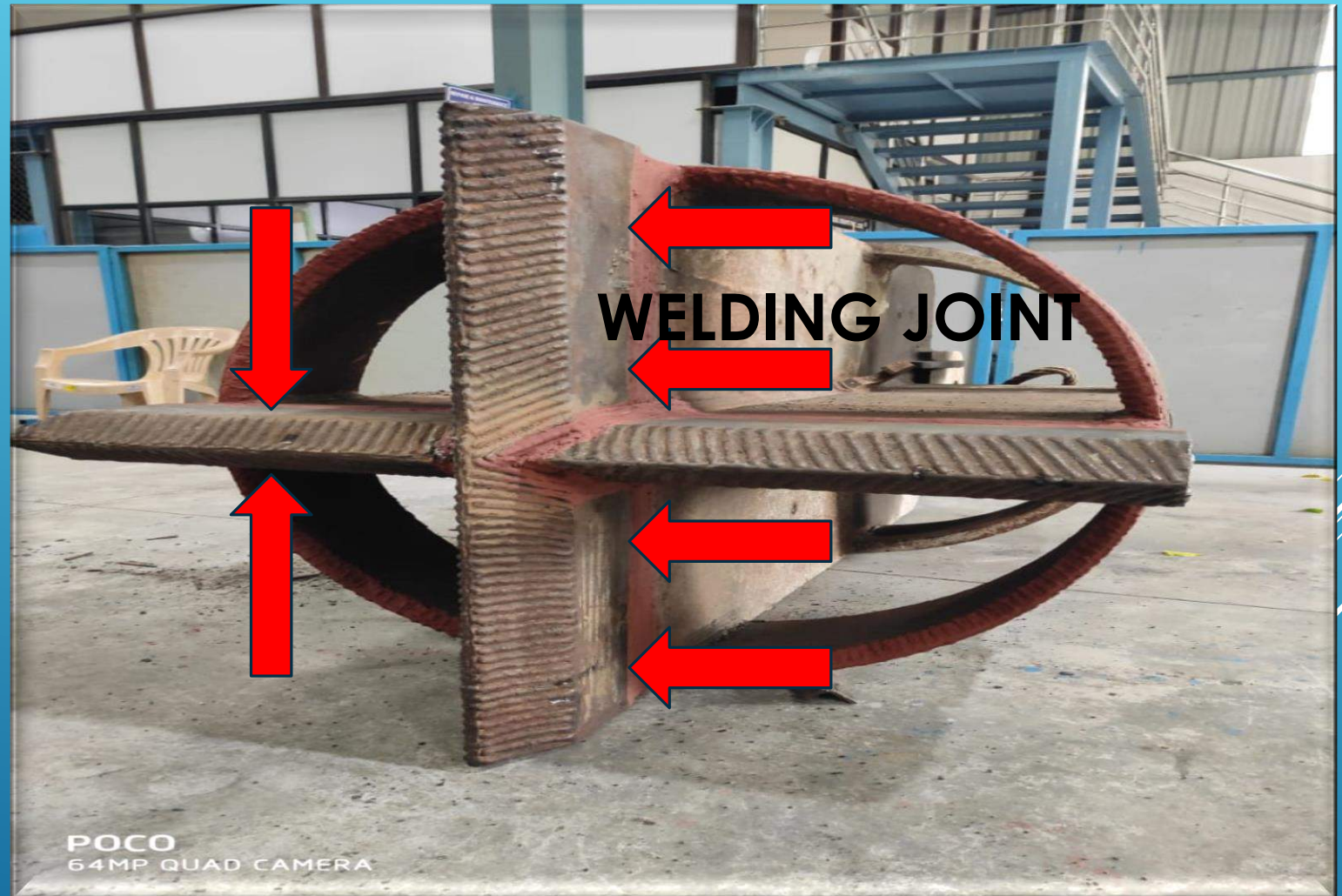
AFTER CUTTING Double U preparation Photo: 6



## WELDING OF PLATES WITH BODY

### Welding:

- In Welding process we have used two types of electrodes Mediocarb & Hardalloy 650.
- Mediocarb 5\*450 mm used to join a new plates to the chisel .
- At last Hardalloy 650 electrodes is used for hardfacing to increase the strength.



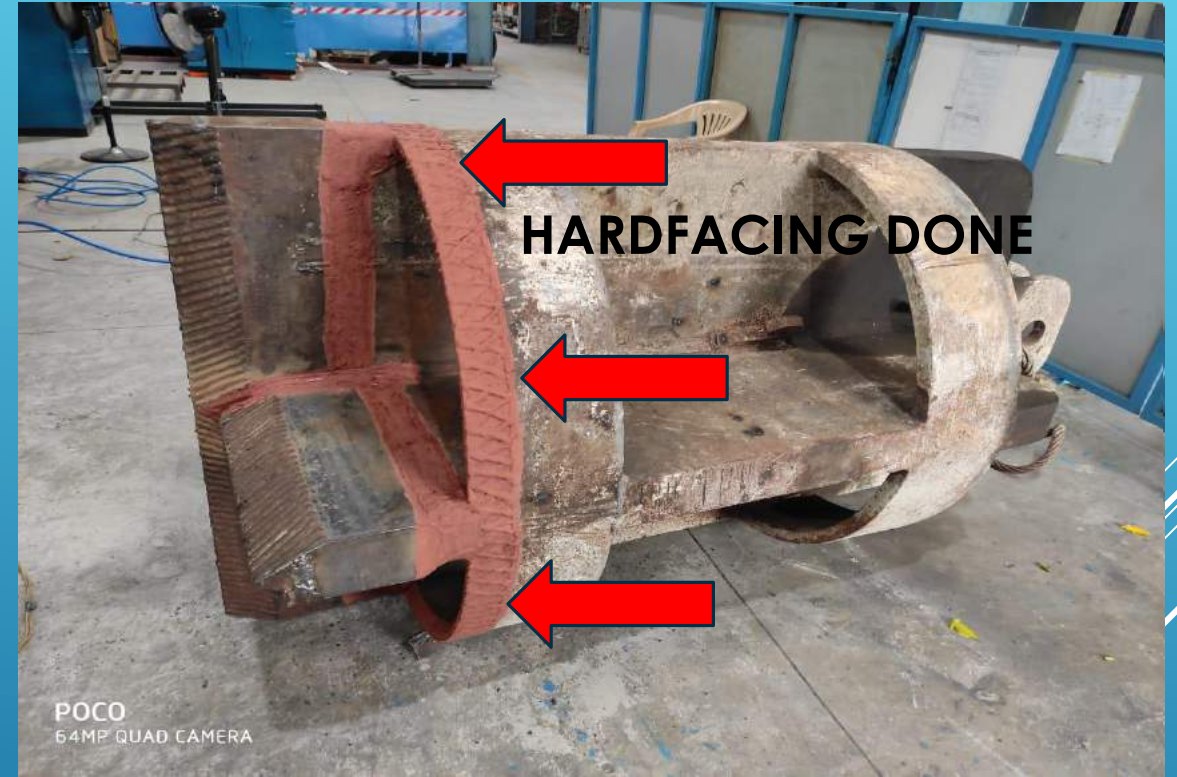
AFTER JOINING THE PLATES WITH BODY Photo: 7



# COMPLETED WORK



COMPLETED CHIESEL Photo: 8



JOINING IS MARKED WITH MARRON Photo: 9





**CHIESEL BEING LOADED IN THE TRUCK**

EXCEL CRAFT Pvt Ltd, offers to take up such critical & Big jobs at Bangalore.



EXCEL CRAFT TEAM THANKS  
YOU