



CASE STUDY

BOLSTER TOP & BOTTOM

FOR 1600 TON PRESS

CUSTOMER :VIJAYA LAKSHMI FORGINGS, COIMBATORE.

DATE : 02-11-2020

REPAIRED BY : EXCEL CRAFT PVT LTD - WELDING DIVISION, BENGALURU



COMPANY PROFILE

VIJAYA LAKSHMI FORGINGS



Vijaya Lakshmi Forgings,

Vijayalakshmi Group of companies, a pre-eminent manufacturing company who is involved in Hot forging of Ferrous and Nonferrous product and located in Coimbatore, Tamilnadu. It has been met the growing demands of the industries with its broad spectrum of products. Our forged products cover many industries: automobile, agriculture, marine, construction hardware tools, material handling and machinery.

EXCEL CRAFT PVT LTD-WELDING DIVISION



Excel Craft (P) Ltd, -Welding Division,

has set up the most modern facilities in Bommasandra, Bengaluru 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

BOLSTER

ABOUT BOLSTER:-

A removable plate that serves as the working surface of a press. The plate is typically bolted to the bed and ram substructures. Tooling is attached to the bolster, which can feature a variety of work holding features such as T-slots, drilled and tapped holes, lift rails to accommodate quick die change systems, and more.

The Bolster has two parts, Bottom is attached to the base plate of the press & top is fixed with the ram. It also ensures aligned stroke of the Top & Bottom toolings.



Photo :01- View of a Bolster Top & Bottom



PROBLEM STATEMENT

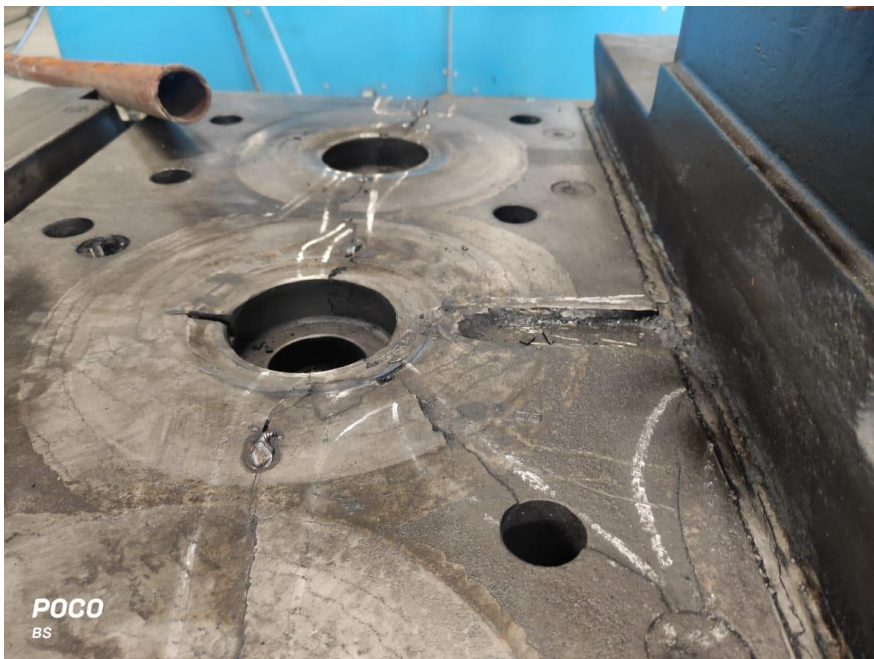


Photo:02 - Cracked Bottom Bolster



Photo:03 - Bolster for Repair

REASON FOR CRACKING:

During the operation of forging a continuous compression load comes to the Bolster through die. Over a period of time the bolster Fatigue & start developing small cracks. If those fatigue cracks are not handled on time this starts developing throughout & leads to cracking bolster into two parts which has happened in the case in Discussion.



TECHNICAL DETAILS OF THE BOLSTER

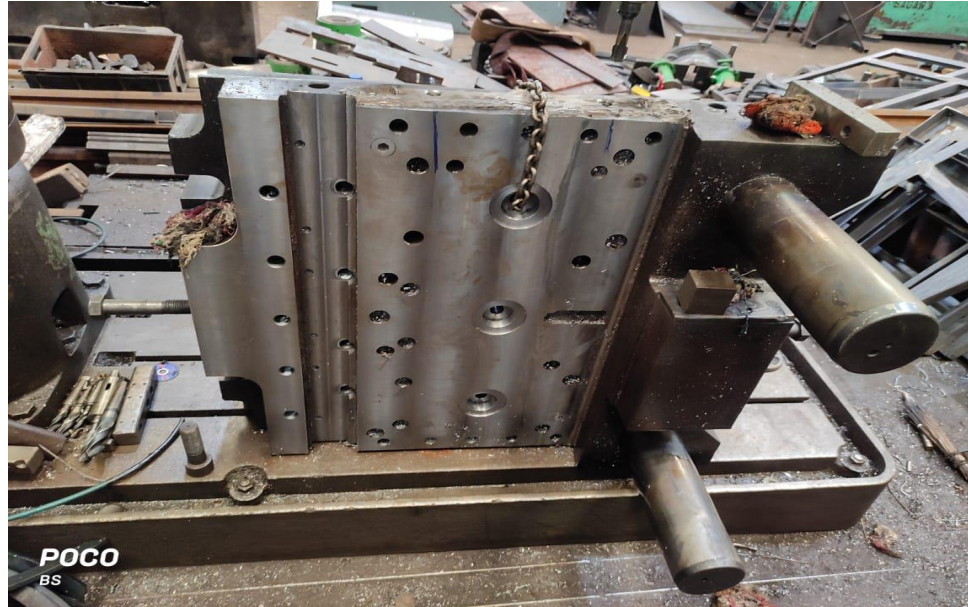


Photo:04- Machined Bolster Bottom

COMPONENT	:BOLSTER TOP & BOTTOM.
MATERIAL	: DIN.1.2714.
COMPOSITION	: C 0.5, Si0.25, Mn 0.7, Ni 1.7, Mo 0.5, V 0.1.
WEIGHT OF BOLSTER	: 1.6 Tons.
PRODUCTS USED	: GOUGING , EXCL BOND 086, EXCEL FORGE 011.



PROCEDURE FOLLOWED TO CARRY OUT THE JOB



Photo:05 - Removed the crack by Gouging process & Grinding

▶ GOUGING PROCESS:-

- Gouging is the method used to remove the material w/o much heat input.
- All cracks were marked and strategy was made to open cracks by gouging from both sides.
- Gouging of the cracks 60% from working side & 40% from non working side.

• GRINDING PROCESS:-

Grinding is done on gouged area to remove the metal spatter & molten material.



WELDING PROCESS



Photo: 06 - Welding on Gouged area



Photo: 07 Completion of Welding

- ▶ Before starting the welding process, The Whole Bolster Bottom is Pre-heated using a Long Burner & gas for 320 deg. Celsius for 12 hours.
- ▶ Carbon Equivalent was checked & preheated.
- ▶ Welding process:
- ▶ Excel Forge 011 & Excel Bond 086.
- ▶ Stress Releasing will be done @ temperature 560° C after completion of Welding Process

MACHINING



Photo : 08 Bolster mounted
in VMC Machine

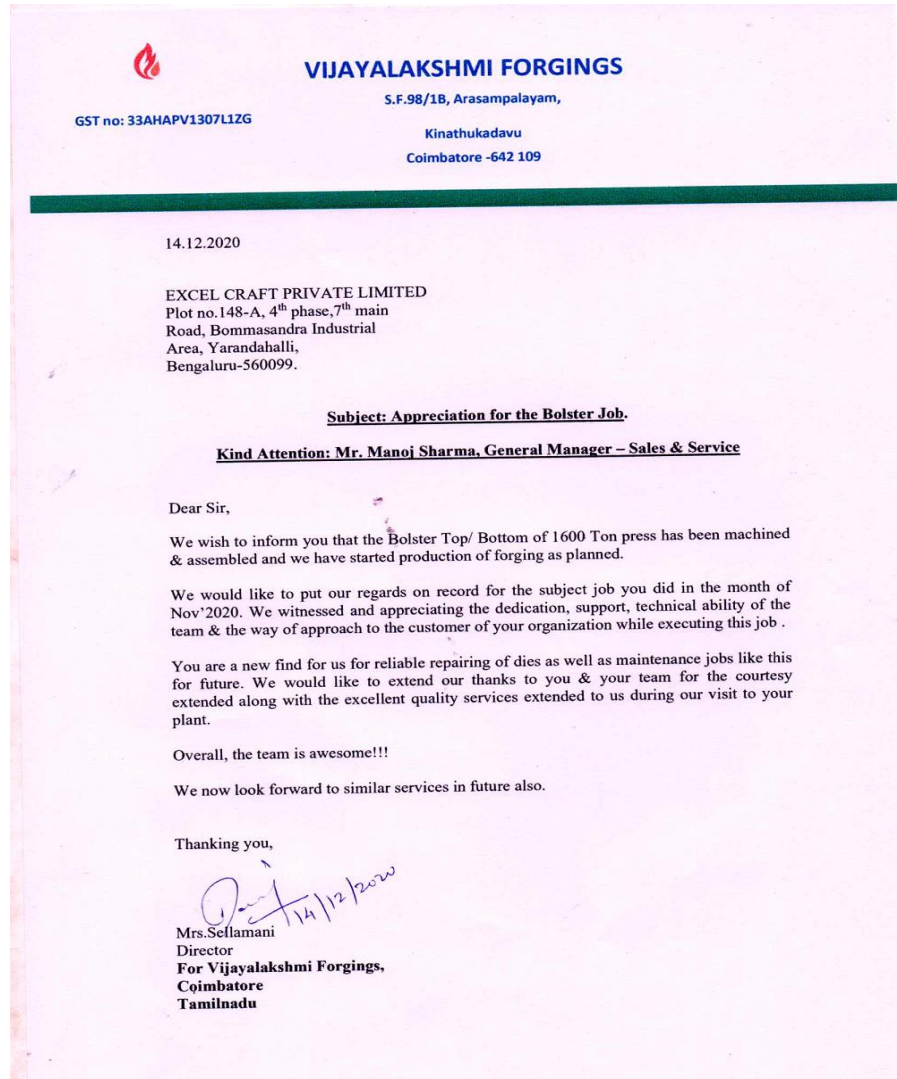
- ▶ After Completion of a welding process, the Bolster is machined to maintain parallelism of the 2 sides.



COMPLETED BOLSTER AFTER MACHINING



APPERICIATION BY CUSTOMER



THANK YOU FROM THE TEAM
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CHALLENGING JOBS

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