

## HERCULES-XHD Extra Heavy Duty Impact Bars

### Project: TATA STEEL JODA MINES

Tata Steel is the among the top ten steel manufacturers in the world. It operates in more than 20 countries and has a commercial presence in over 50 countries. Tata's Iron Ore mines in India, are located at Noamundi (Jharkhand) and Joda (Odisha).

### THE PROBLEM

The Joda Iron Ore Mine had been facing a long standing issue, Iron ore from the captive mines were crushed in a primary crusher, and the crushed ore was fed to a conveyor which took the material to the secondary crusher for further processing. Due to the size and fall height of the iron ore, the plant faced frequent damages necessitating change of impact idlers in the conveyor loading point. This was a cause of many unscheduled stoppages which affected the productivity.

The impact rollers were replaced with Impact Beds from different suppliers, but none of these could withstand the heavy impact, leading to premature failures.

### THEJO'S SOLUTION

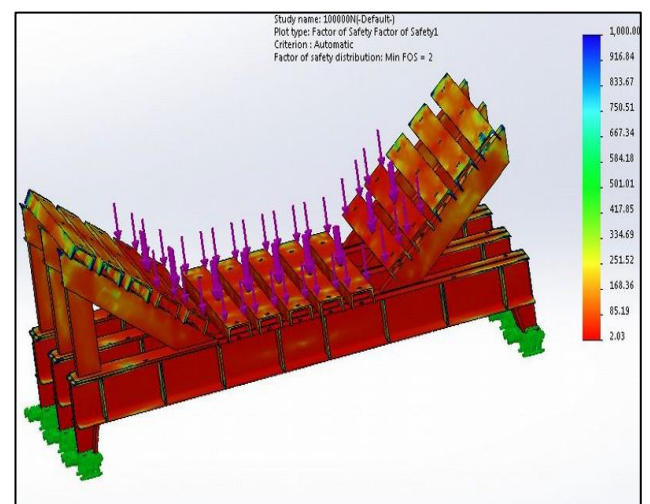
Thejo was given the opportunity to study and submit a proposal to resolve the issue. Our site engineers were deployed to the site and all related parameters collected, communicated to the Engineering & design team. With the help of simulation software, the team developed a customised sturdy Extra Heavy Duty Impact bed. However, the standard heavy duty Impact Bars showed premature failure. The heavy impact forces resulted in the Aluminium fixing tracks of the impact bars getting badly disfigured/damaged, and thereby the UHMWPE debonding from the Rubber base.



*Impact beds that were earlier in use*



*Damaged Impact Bars*



*Impact Bed Load Simulation*

## HERCULES-XHD Extra Heavy Duty Impact Bars

A completely new Extra Heavy Duty Impact Bar was then designed, to withstand the severe impact forces. Aluminium reinforcement was replaced by a more sturdy Steel reinforcement with extra anchoring. The rubber compound was modified to improve the dampening effects.

The new Extra Heavy Duty Impact Bars were produced and subjected to extensive load tests at our Product Innovation centre, before finally issuing for production.

The newly developed Extra Heavy Duty Impact bed, HERCULES-XHD, was then installed in the loading zone on trial basis.

Extra Heavy Duty HERCULES-XHD Impact pads installed showed excellent results. The impact bars achieved a service life of four months, i.e double the life of that achieved by other manufacturers.

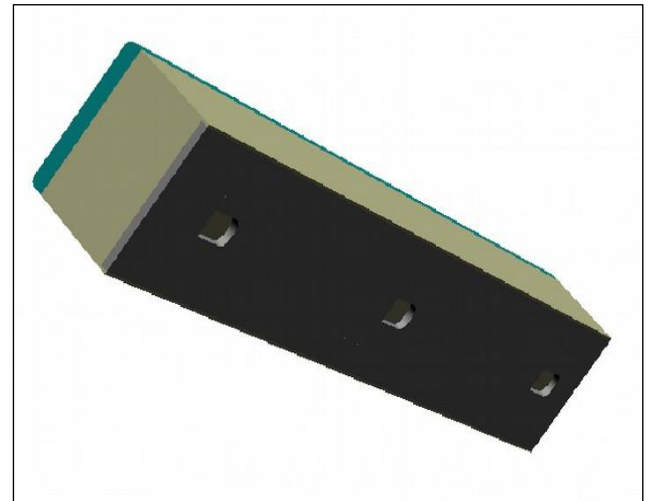
After seven months of operation the Impact Bed structure indicated signs of fatigue. Special rubber cushions were provided at the mounting area to further dampen the impact loads onto the structure and extend the service life. This modification has since been incorporated as a standard into the Extra Heavy Duty Impact bed design.

### CONCLUSION

*"Every problem, has a solution..."*

The positive approach from the Product Development Team at Thejo, helped the plant in resolving one of its biggest operational problems.

The client installed Thejo HERCULES-XHD Impact beds at all critical loading points, and has since procured more sets.



*New Design of Heavy Duty Impact Pad*



*HERCULES-XHD Impact Bed at site*



*New HERCULES Impact Bed at Thejo Works*