



Case Study | Industrial Heavy Machinery

DESIGN: MOBILE DRILLING RIG

AN IMPORTANT MINING EQUIPMENT MANUFACTURER WANTED TO ADAPT A TRUCK-MOUNTED DRILL RIG TO BE USED ON TRACKS AND ASKED TATA TECHNOLOGIES TO REDESIGN THE PLATFORM RIG FRAME SO THAT IT COULD BE MOUNTED ON EITHER TRUCK OR TRACKS.

THE CHALLENGE

- Redesigning the outriggers, stairs and catwalk.
- Developing a technical report with studies of the equipment's limitations while operating and in transport position. The report would be included in the technical manual.
- 3D modelling of the drive head and designs for the mounting on the mast, so that it could open at a specific angle.

THE COMPANY

The company is one of the world's leading providers of drilling services, drilling equipment, and performance tooling for mining and drilling companies. Its headquarters are in North America.



THE SOLUTION

Phase 1 – Design

- Created innovative designs for a new drilling rig chassis and base frame mount, to be used with both transportation options.
- Redesigned the outriggers, stairs, and catwalk.

Phase 2 – Technical

- Created 3D models for the drive head and designed the head mountings on the mast.
- Followed technical standards and created a technical report for 14 drilling rig configurations.

Phase 3 – Final Checks

- Determined the centre of gravity for the least stable positions when the mast was up and in transport position.
- Determined the worse cases for static stability & dynamic stability angles with and without wind loading.
- Performed Finite Element Analysis (FEA) structural analysis and optimizations for manufacturability.

THE RESULT



Simplified assembly



Reduced the number of components without compromising the overall strength



Reduced machining and welding time

ABOUT US

Tata Technologies is a global engineering and product development IT services company that is focused on fulfilling its mission of helping the world drive, fly, build and farm by enabling manufacturing companies across the automotive, aerospace and industrial heavy machinery verticals realize better products and drive efficiencies in their businesses. There are two components to our value proposition – managing and delivering outsourced engineering services and products for our manufacturing clients, and helping them identify and deploy technologies that are used to conceptualize, design, validate, build, test, benchmark and realize better products. For more information, visit www.tatatechnologies.com.