A MINING EQUIPMENT MANUFACTURER WANTED TO ADAPT A TRUCK-MOUNTED DRILL RIG TO BE USED ON TRACKS. THEY ASKED TATA TECHNOLOGIES TO REDESIGN THE PLATFORM RIG FRAME SO THAT IT COULD BE MOUNTED ON EITHER TRUCKS 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, to be included in the new technical manual.
- 3D modeling of the drive head and designs for the mounting on the mast, so that it could open at a specific angle.

THE COMPANY

One of the world’s leading providers of drilling services, drilling equipment, and performance tooling for mining and drilling companies. It is headquartered in the United States and has customers in more than 100 countries.
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 center of gravity for the least stable positions when the mast was up and in transport position.
- Determined the worst case scenarios for static stability and dynamic stability angles, both with and without wind loading.
- Performed finite element analysis (FEA), structural analysis and optimizations for manufacturability.

THE RESULT

- Reduced the number of components without compromising overall strength
- Reduced machining and welding time
- Simplified assembly

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.