MHI engineering

Materials Handling Equipment Integrity

MHI is a team of expert mechanical and structural engineers with extensive experience in the design, optimisation, integrity, and enhancement of materials handling machines, processing equipment, and industrial structures. MHI aligns the latest technology in numerical analysis with years of engineering solutions for greenfield and brownfield projects.

Our mission is to support Original Equipment Manufacturers (OEMs) and operators with high-end engineering. MHI's holistic approach supports projects achieving technical compliance throughout the whole equipment lifecycle; including the design phase, sea transport, land transport, fabrication and construction.

Equipment Design

Materials Handling equipment design to Australian and international standards.

Computational Simulation

Dynamic analysis
Linear and non-linear strength analysis
Thermal analysis
Critical Buckling Failure Analysis
Discreet element method analysis (DEM)
Structural optimisation
Femap NX, Ansys, Strand7, Rocky, SpaceGass

3D Modelling / Drafting

3D - Modelling
Studies and equipment layout
Detail Design
Inventor; Solid Works; Advance Steel

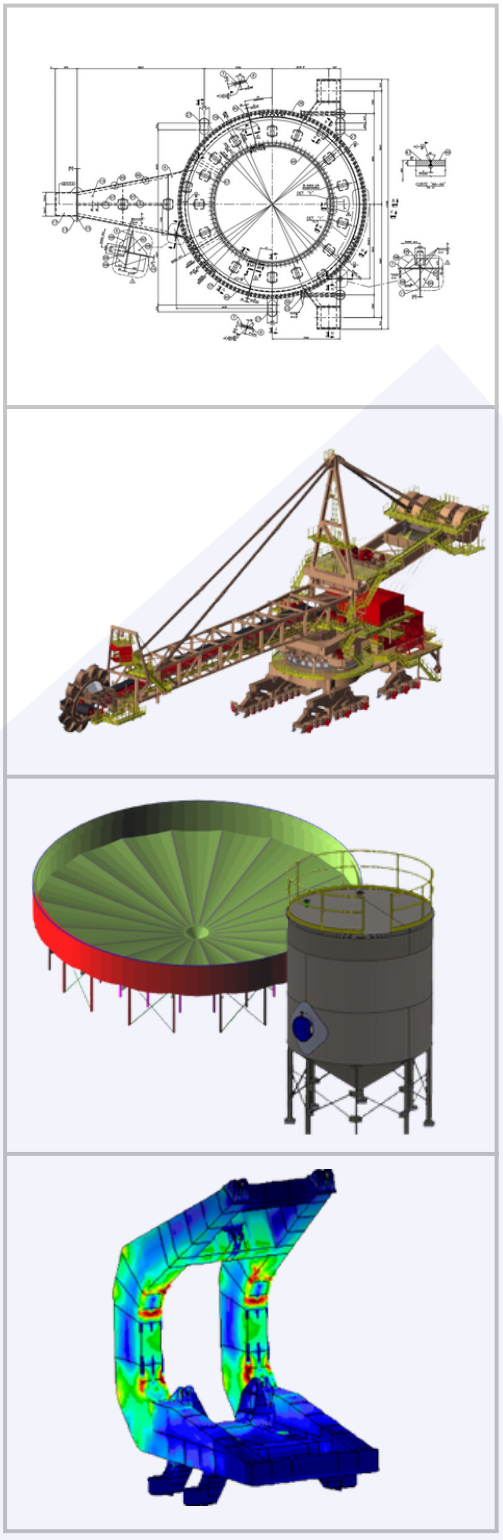
Application of Relevant Standards

AS1418, AS1657, AS3774, AS3990, AS4024, AS4100, AS4324.1, FEM, ISO 5049, BS 7608

Design audits

Design audits help OEMs and operators ensure that equipment meets its intended performance, structural reliability, and required fatigue life.

Design compliance check
Load assumptions
stability
Fatigue life
Wheel/Foundation loads
safety against drifting
Equipment weighing verification
Equipment balance review



Asset Integrity

Equipment integrity review
Site Inspections
Risk-based condition assessment, Failure Root Cause Analysis.

Data Analytics

Effectiveness of protection devices;
Machine operational check;
Stability verification and design parameters compliance

Maintenance

Maintenance activities in materials handling equipment often involve high-risk work. MHI supports clients with maintenance procedures and engineering, such as Temporary structure design, equipment stability control, and structural integrity during maintenance activity.

Equipment Upgrade

Capacity upgrade studies and design,
Equipment remaining life assessment
Life extension, Feasibility studies.

Structural Repairs

Failure investigation
Fatigue assessment and crack repair
Repair design.

Deconstruction

Deconstruction methodology
Design of Liftings aids
Temporary structures
Structural Integrity
Equipment stability
Sea and land transport engineering
Structural integrity and safety

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