MECHANICAL DESIGN ENGINEER ROLES AND RESPONSIBILITIES

Reporting to: Lead Mechanical Design Engineer

Role Purpose

The Mechanical Design Engineer is responsible for designing, developing, modifying and supporting mechanical plant, equipment, attachments and specialist engineering solutions across Franki Group UK.

The role ensures that designs are safe, compliant, practical, reliable and suitable for use in operational and site environments. The Mechanical Design Engineer will consider performance, manufacture, maintenance, cost, programme and whole-life asset requirements when developing solutions.

Reporting to the Lead Mechanical Design Engineer, the role works closely with Plant, Workshop, Operations, Health and Safety, Quality, Procurement, suppliers and site teams.

KEY RESPONSIBILITIES

Mechanical Design and Development

- Produce concept and detailed mechanical designs for plant, equipment, attachments and specialist engineering solutions.
- Translate operational requirements into clear drawings, calculations and technical specifications.
- Prepare assembly drawings, component drawings, layouts and bills of materials.
- Select suitable materials, components and manufacturing methods.
- Ensure designs are practical, manufacturable, maintainable and suitable for site conditions.
- Complete assigned design work within agreed cost and programme requirements.
- Escalate significant technical, safety or programme concerns to the Lead Mechanical Design Engineer.

Engineering Calculations and Technical Analysis

- Complete appropriate mechanical and structural calculations.
- Assess loads, stresses, fatigue, vibration, wear and operating conditions.
- Verify that proposed components and materials are suitable for the intended application.
- Use appropriate engineering software and calculation methods.
- Maintain clear records of assumptions, inputs and design decisions.
- Arrange independent checking or specialist support where required.
- Ensure calculations are reviewed and approved in accordance with Company procedures.

Plant and Equipment Modification

- Develop safe and practical modifications to existing plant and equipment.
- Assess the effect of proposed changes on performance, safety, certification, maintenance and warranty.
- Prepare revised drawings, specifications and technical instructions.

- Ensure modifications are approved before manufacture or installation.
- Maintain clear records of engineering changes and final equipment configuration.
- Support the introduction of modified equipment into service.
- Monitor performance and recommend further action where required.

Safety and Compliance

- Ensure designs comply with applicable legislation, standards, manufacturer requirements and Company procedures.
- Apply relevant requirements under PUWER, LOLER and machinery safety legislation.
- Complete design risk assessments and identify residual risks.
- Eliminate or reduce hazards through design wherever reasonably practicable.
- Consider guarding, access, emergency controls, lifting points and maintenance requirements.
- Support UKCA or CE conformity assessment where applicable.
- Prevent unapproved or unsafe designs from progressing to manufacture or use.

Manufacturing and Workshop Support

- Provide clear technical information to workshops, fabricators and manufacturers.
- Respond to queries during fabrication, assembly, repair and installation.
- Review fabrication methods, tolerances, weld details and component selection.
- Inspect manufactured or modified equipment where required.
- Confirm that completed work follows the approved design.
- Identify non-conforming work and support corrective action.
- Work with workshop teams to improve build quality and maintainability.

Testing, Commissioning and Handover

- Prepare testing, inspection and commissioning requirements.
- Support functional, load and performance testing.
- Confirm that equipment operates safely and meets the design requirements.
- Record test results, defects and outstanding actions.
- Ensure issues are resolved before equipment is released for operational use.
- Prepare technical manuals, maintenance information and user instructions where required.
- Provide clear technical handover information to Plant, Operations and site teams.

Reliability and Fault Investigation

- Support investigations into mechanical breakdowns, defects and equipment damage.
- Review maintenance and operational data to identify recurring failures.
- Carry out root-cause analysis where appropriate.
- Develop engineering solutions to improve reliability and reduce downtime.
- Recommend repair, modification, restriction or withdrawal from service where necessary.
- Monitor the effectiveness of completed improvements.
- Apply lessons learned to future designs.

Procurement and Supplier Support

- Prepare technical specifications for components, systems and manufactured equipment.
- Support supplier selection and technical evaluation.

- Review supplier drawings, calculations and technical submissions.
- Confirm that proposed products meet the required specification.
- Liaise with manufacturers and suppliers to resolve technical issues.
- Support inspections, testing, warranty matters and defect resolution.
- Maintain accurate records of technical approvals and supplier information.

Design Governance and Document Control

- Maintain complete and accurate design records.
- Ensure drawings, calculations, risk assessments and specifications use the correct revision status.
- Follow checking, approval and document-control procedures.
- Ensure only approved information is issued for manufacture or use.
- Maintain technical files and equipment-specific engineering records.
- Protect confidential and commercially sensitive information.
- Support technical audits and complete agreed corrective actions.
- Update records promptly following design changes or modifications.

Operational and Site Support

- Provide technical advice to Plant, Workshop, Operations and site teams.
- Attend sites, yards and workshops where engineering input is required.
- Assess mechanical faults and equipment condition.
- Support urgent operational requirements without compromising safety or approval controls.
- Communicate technical findings and recommendations clearly.
- Support incident investigations involving mechanical plant or equipment.
- Assist with equipment familiarisation and technical briefings.

Cost and Programme Control

- Plan and prioritise assigned engineering activities.
- Prepare estimates for design, manufacture, modification and testing work.
- Consider whole-life cost when selecting components and design solutions.
- Monitor progress against agreed deadlines and budgets.
- Identify potential delays, additional costs or resource requirements early.
- Support capital expenditure and equipment investment proposals.
- Ensure design effort remains proportionate to the operational requirement.

Continuous Improvement

- Review equipment performance and apply lessons learned.
- Improve standard drawings, technical specifications and design templates.
- Identify opportunities to standardise components and equipment.
- Support the improved use of engineering software and digital systems.
- Share technical knowledge with Plant, Workshop and operational teams.
- Challenge outdated or inefficient engineering practices.
- Measure whether engineering changes improve reliability, safety or cost.

BEHAVIOURAL COMPETENCIES

Accountability and Ownership

- Takes responsibility for assigned designs and technical work.
- Maintains high standards of accuracy and professional judgement.

- Meets agreed deadlines and follows actions through to completion.
- Escalates risks, errors and information gaps promptly.
- Acts with integrity and prioritises safety.

Technical and Commercial Thinking
- Understands how design decisions affect safety, reliability, cost and operational performance.
- Balances technical quality with practical and commercial requirements.
- Uses reliable data and engineering evidence to support decisions.
- Considers manufacture, maintenance and whole-life cost.
- Identifies practical opportunities to improve equipment performance.

Delivering Results
- Produces accurate, compliant and practical designs.
- Manages multiple technical priorities effectively.
- Resolves engineering issues promptly.
- Maintains control of revisions, testing and approvals.
- Delivers clear and complete technical handovers.

Collaboration and Communication
- Works effectively with Plant, Workshop, Operations, Safety, Quality and Procurement teams.
- Communicates technical information clearly to non-technical stakeholders.
- Builds professional relationships with suppliers and manufacturers.
- Seeks operational input and avoids designing in isolation.
- Responds constructively to review and challenge.

Professional Development
- Maintains current technical and regulatory knowledge.
- Seeks feedback and applies learning.
- Shares engineering knowledge with colleagues.
- Takes responsibility for continuing professional development.
- Supports junior colleagues where appropriate.

Continuous Improvement
- Reviews failures and applies lessons learned.
- Improves design standards, processes and records.
- Uses operational data to improve reliability.
- Challenges inefficient or outdated working practices.
- Measures the effectiveness of completed engineering improvements.

PERFORMANCE AND BONUS MEASURES

Technical Quality and Design Delivery – 30%
Measured against:
- accuracy and completeness of drawings and calculations;
- compliance with technical standards;
- delivery within agreed timescales;
- quality of technical documentation;
- reduction in design errors and rework; and

- quality of manufacturing and operational handover information.

Safety and Compliance – 25%
Measured against:
- quality of design risk assessments;
- compliance with PUWER, LOLER and machinery safety requirements;
- completion of checking and approval requirements;
- accuracy of technical files and engineering records;
- closure of audit and corrective actions; and
- effective control of design changes.

Reliability and Operational Support – 20%
Measured against:
- effectiveness of modifications and engineering solutions;
- reduction in recurring plant failures;
- improvement in equipment reliability and availability;
- quality of fault investigations;
- responsiveness to operational requirements; and
- feedback from Plant, Workshop and Operations teams.

Cost, Programme and Supplier Performance – 10%
Measured against:
- delivery within agreed engineering budgets and programmes;
- consideration of whole-life cost;
- quality of supplier technical reviews;
- reduction in avoidable manufacturing or modification cost;
- accuracy of technical specifications; and
- completion of agreed improvement actions.

Behavioural Competencies – 15%
Measured against:
- accountability;
- technical judgement;
- accuracy;
- communication;
- collaboration;
- professional development;
- integrity; and
- continuous improvement.

A serious failure in safety, design governance, technical integrity, compliance or engineering approval may reduce or remove the behavioural element and may affect the overall bonus outcome.

BONUS GOVERNANCE
Any bonus remains non-contractual and discretionary. Assessment will take account of individual performance, agreed objectives, behavioural contribution, business performance, profitability, affordability, cash flow and the Group's overall financial position.

ESSENTIAL EXPERIENCE AND CAPABILITY
The successful candidate should have:

- mechanical design engineering experience within construction plant, heavy engineering, manufacturing, lifting, piling or a related sector;
- experience designing or modifying machinery, attachments or mechanical systems;
- knowledge of engineering calculations, materials, fabrication and component selection;
- experience using CAD and mechanical design software;
- an understanding of PUWER, LOLER and machinery safety requirements;
- experience preparing technical drawings, specifications and bills of materials;
- practical problem-solving and fault-investigation capability;
- the ability to work with workshops, suppliers and operational teams;
- strong attention to detail; and
- clear written and verbal technical communication skills.

DESIRABLE

- Degree, HNC, HND or equivalent qualification in mechanical engineering.
- Experience in piling, foundations, drilling, lifting or heavy construction equipment.
- Knowledge of hydraulic systems, welded fabrication and structural steelwork.
- Experience supporting UKCA or CE conformity assessment.
- Experience with finite element analysis or specialist engineering software.
- Progress toward professional registration with a relevant engineering body.

ROLE REVIEW AND ACKNOWLEDGEMENT

This document sets out the principal accountabilities and expected standards of the role. It is not intended to be an exhaustive list of every task or objective. Responsibilities, priorities and performance measures may be reasonably adjusted to reflect business requirements, development and project allocation, provided any material change to the fundamental nature of the role or contractual terms is managed appropriately.

Employee name	
Employee signature / date	
Manager signature / date	