

6MW Main Armature Design & Manufacture

Quartzelec delivered the design, manufacture and supply of a strategic spare armature for a 6MW, 1,200V steel industry roughing mill main motor, enhancing operational resilience, reducing maintenance risk and supporting long-term production reliability.

STEEL MANUFACTURING | NEW SOUTH WALES, AUSTRALIA

Our Customer's Challenge

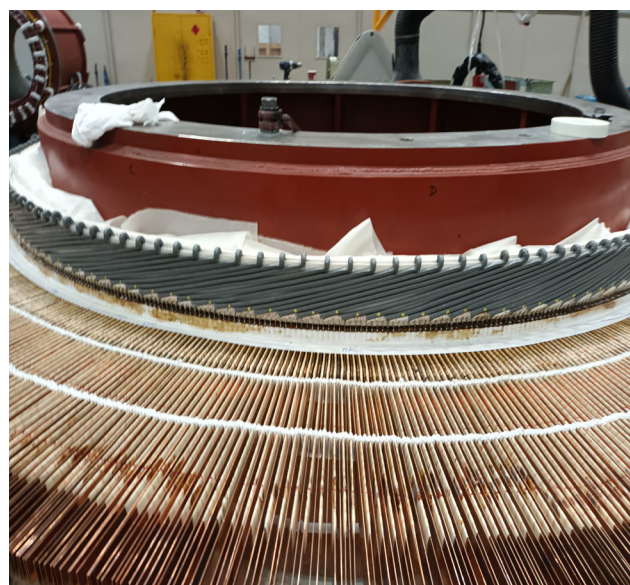
The steel manufacturing client relied on a critical roughing mill drive system that forms an essential part of its production process. A strategic spare armature for the main drive motors had been removed from service, overhauled in 1990 and then held in storage for many years. As the condition and long-term reliability of this spare became increasingly uncertain, it was identified as a potential operational risk.

At the same time, many of the site's legacy drive and control systems were approaching end of life, while the retirement of experienced personnel created additional challenges in maintaining specialist knowledge and support for the ageing equipment. The client therefore required a new, fully interchangeable spare armature and coupling assembly to safeguard future operations, minimise the risk of unplanned downtime and provide long-term security for one of its most critical production assets.

The Quartzelec Solution

Quartzelec provided the complete design, engineering, manufacture, inspection, testing and supply of a new spare wound armature and forged half coupling for the roughing mill main drive motors. The replacement assembly was designed to be fully electrically and mechanically interchangeable with the original armatures, ensuring compatibility with both the top and bottom motor configurations.

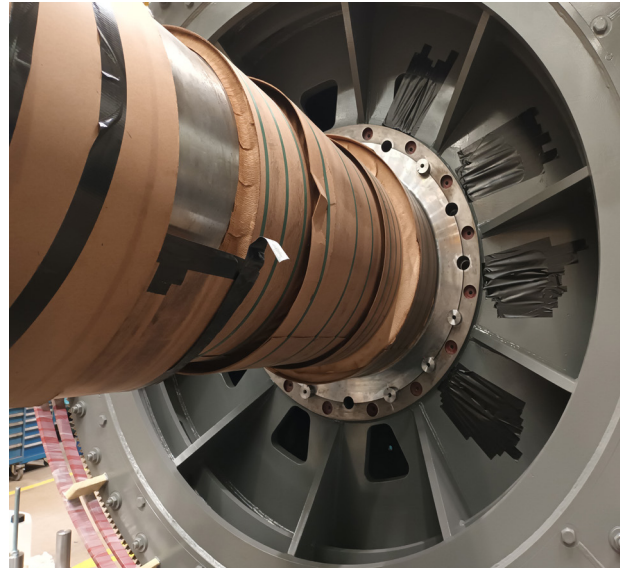
The armature was manufactured to the original dimensions and incorporated a robust construction featuring loose keybar drive transmission, a shaft-mounted circular driving plate and a copper commutator assembly with brazed riser connections. The design also included a fully encapsulated equaliser winding secured with glass banding to minimise contamination from carbon dust and improve long-term operational reliability.



The Quartzelec **Solution** (cont'd)

To meet the motor's demanding performance requirements, the armature bars were insulated using a Class F insulation system comprising epoxy novolak bonded glass-backed mica tape, consolidated to provide a radial insulation thickness of 0.75 mm. In addition, Quartzelec manufactured and fitted a fully machined forged half coupling in accordance with the client's engineering drawings, together with approved modifications to the armature shaft design.

The completed assembly underwent comprehensive inspection, factory testing and performance verification prior to shipment. Due to the exceptional size and weight of the component, Quartzelec also upgraded its in-house machining facilities, including lathe capabilities, to accommodate the manufacture and precision machining requirements of the project. Following successful testing, the armature was packaged for export and delivered with the associated technical documentation.



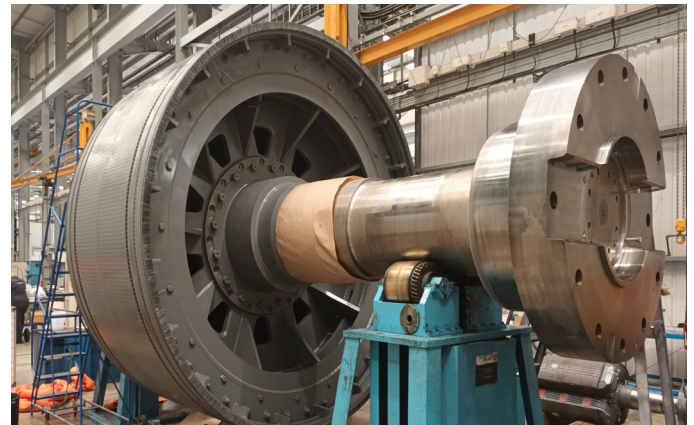
Key Benefits

Fully Interchangeable Replacement Assembly: Designed for complete electrical and mechanical compatibility with the existing roughing mill drive motors.

High-Reliability Class F Insulation System: Advanced mica-based insulation provides enhanced thermal performance and long-term durability.

Precision-Engineered Coupling Integration: Supplied with a fully machined forged half coupling manufactured to the client's specifications.

Factory Tested and Performance Verified: Comprehensive inspection and testing completed prior to delivery to validate quality and operational performance.



6MW
Capacity

Direct
Replacement

Factory
Tested

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