

Custom modified part reduces downtime costs for SAG mill operations

CUSTOMER

Gold miner

LOCATION

Sumatra, Indonesia

INDUSTRY

Mining

KEY SERVICES

Motor services

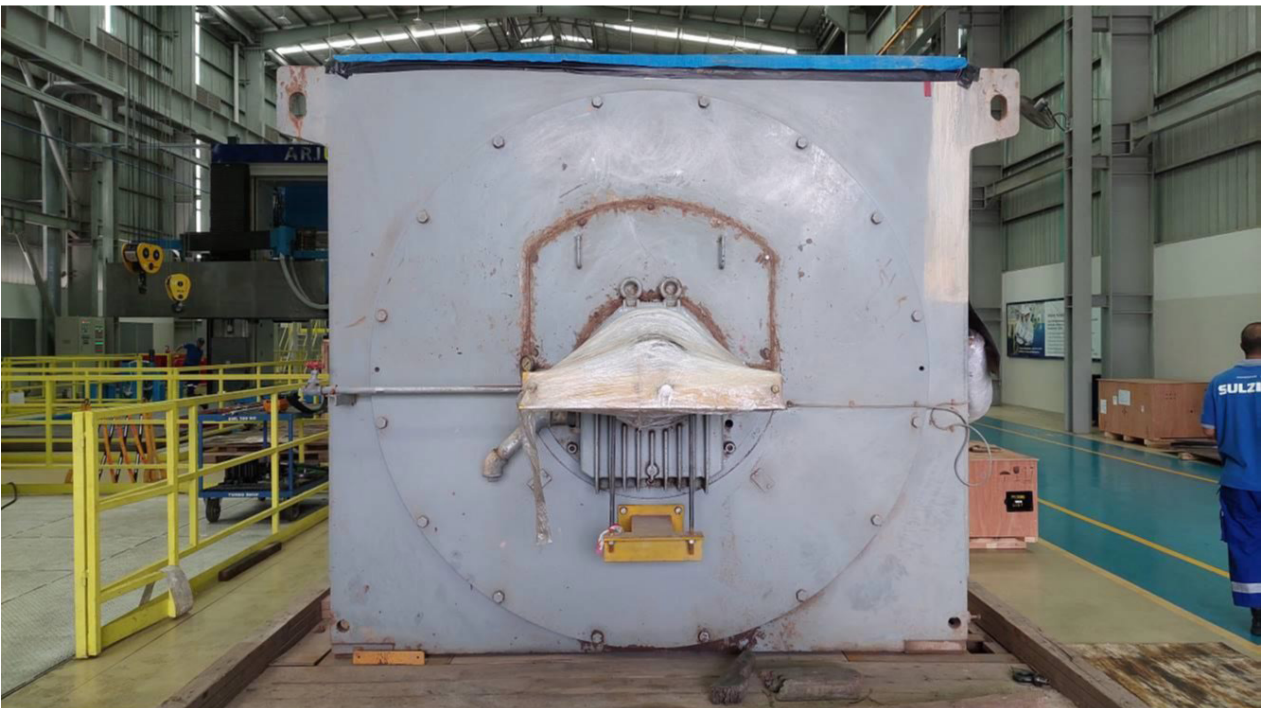


THE CHALLENGE

Problems escalating-increased carbon built-up



- Engineers at a gold mine in Sumatra noticed that the maintenance intervals for their 6.5 MW 3-phase slip ring SAG mill induction motors were becoming shorter
- A spare motor was activated to cover for the faulty unit while the operator needed expert support to quickly diagnose and determine the root-cause for the problem
- OEM support was not forthcoming.
- The mine operator took reference from their Australian counterparts who faced a rather similar issue.
- They sought the support from Sulzer Indonesia



Slip ring end bearing housing removal

THE SOLUTION

Fast-tracked repair with substantial lead-time savings

- Upon detailed investigation, our engineers discovered carbon deposits had contaminated the windings.
- The carbon build-up could potentially cause a ground fault, that would damage the motor, necessitating a full rewind.
- The root-cause was that the motor OEM had omitted a slip ring chamber seal in its design.
- This allowed particles to enter the stator and build-up on the windings.
- This was a fault known to Sulzer from previous projects and it already had a ready-made solution, which was supplied to a customer in Australia.
- Our brand agnostic approach and deep expertise meant that we could address specific weakness and failure modes with upgraded components.
- We designed and supplied a custom modified slip ring chamber seal, preventing carbon dust entering the stator and contaminating the windings.
- A complete overhaul of the motor was delivered to ensure long term reliability.
- Parts were replaced such as gaskets, slip rings, jacking oil hoses, bearing labyrinth seals, bearing seal vent hoses, hemp tallow seals, two terminal blocks and mounting strips.
- A new keyway was added to the slip rings, and Sulzer manufactured and fitted an insulated surge ring too.
- Once repairs and modifications were completed, balancing and electrical tests were conducted before delivery.



1. Install modification surge ring

2. Testing

3. Pull in rotor

4. Install new slip ring

5. Balancing

THE IMPACT

Hefty CAPEX avoided with equipment life-extension

- The project was completed in 18 weeks, minimizing time relied on its spare motor
- Substantial amount of CAPEX was saved for a new motor purchase thanks to the engineered slip ring chamber seal and overhaul activities
- A cost savings difference of 91% was achieved with the repair, compared to the conventional approach of purchasing a new motor
- The complete overhaul and targeted components replacement is expected to offer a service life-extension of 30 years for the motor
- Impressed with the outcome of the initial repair, the mine operator sent 2 more motors for a similar overhaul and part replacement



PROJECT KEY FACTS

EQUIPMENT LIFE EXTENSION

30 years

PROJECT LEAD-TIME

18 weeks

COST DIFFERENCE WITH NEW MOTOR CAPEX

91%
