

Mining services for Indonesia

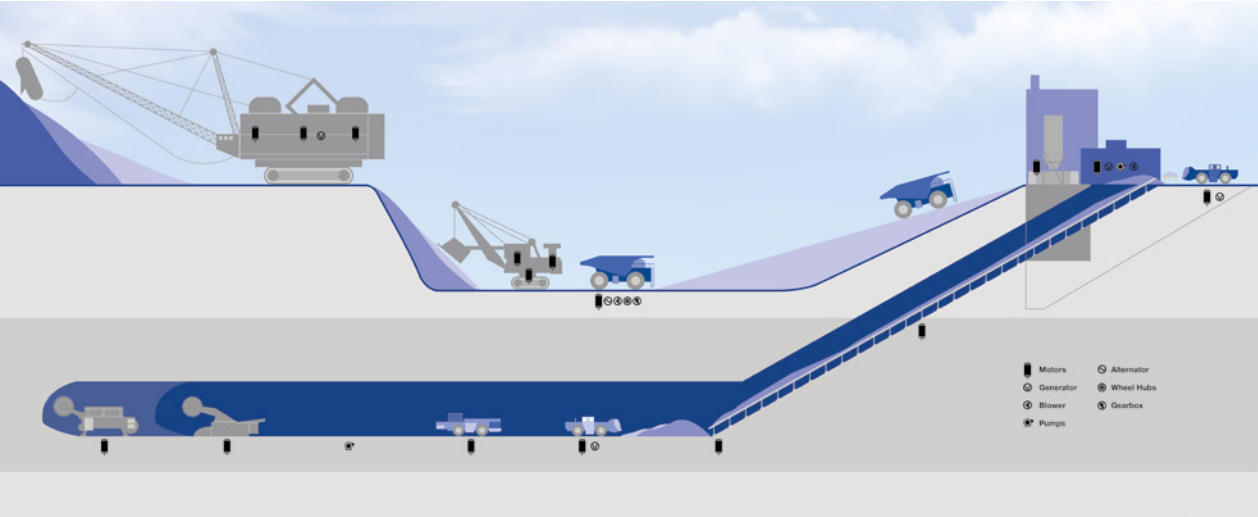
The mining industry is a fast growing one for the Indonesia economy, contributing over 12% of the country's GDP. The reliability and performance of machinery which drives the extraction and production of minerals is paramount where downtime could equate to hefty monetary impact. Sulzer's established service network and depth of expertise for rotating equipment servicing positions us as one of the leading partners for the mining sector.



Service overview

The mining industry is one of the most demanding. Therefore, Sulzer offers a wide range of in-house and on-site electromechanical services for all industries. Our service locations in Purwakarta and Balikpapan are equipped with supplies and expertise, dedicated to serve the mining sector. Our solutions ensure that equipment operates reliably in coal, hard rock, copper, gold, and any other mining applications.

We provide a fast and efficient service with the objective of maximizing plant efficiency and reliability whilst minimizing costs and machine downtime. Our experienced teams of multi-skilled electro-mechanical engineers can repair our equipment on site or in one of our global service centers. Many of our service centers operate a 24-hour call out, 365 days of the year to ensure we are always available when you need us.



	AC/DC motors	DC generators	Alternators	Grid blowers	Intake fans	Gearboxes
Haul trucks	●	●	●	●		●
Wheel loaders	●	●	●			●
Rope shovels	●	●	●		●	●
Shearers, shuttle cars, miners etc.	●	●				●
Coal preparation plants	●	●			●	●
Ball and SAG mills	●				●	●
Air blowers	●					

Our service centers

Key specifications	Purwakarta service center and headquarters	Balikpapan service center
Floor area	7'394 m ²	1'005 m ²
Crane capacity	Up to 60 tons	Up to 10 tons
Dynamic balancing	Portable- up to 50 and 100 tons	Portable- up to 5 tons
CNC vertical lathe	3 axis-Large	~
CNC bridge	5 axis-Large	~
CNC universal milling machine	AMCO-SACEM FPF-4500	~
SAW	Portable submerged arc welding station	~
Stacking pit	Up to 9 m (height) and 4 m (diameter)	~
Other major equipment	NDT equipment 3D scanners Complete field servicing equipment Fully equipped machine shop Complete engineering and CAD tools	



Contact

PT Sulzer Indonesia
 Purwakarta Service Center & Headquarters
 Kawasan Industri Kota Bukit Indah
 41181 Purwakarta
 Tel: +62 264 8631 300

PT Sulzer Indonesia
 Balikpapan service center
 Jl. Mulawarman No.23
 Balikpapan 76115 Kalimantan Timur
 Tel: +62 (542) 8213 700

Reconditioned Exchange Programme (REP)

Mining companies invest huge sums into their equipment, which needs to deliver high output round the clock. Planned maintenance plays an important role in sustained reliability and many companies rely on it to deliver continued productivity.

Sulzer is pleased to now offer AC wheel motors, Alternators and Grid Blowers to suit a range of haul trucks in our Recondition Exchange Program (REP) which minimize both downtime and investment for the customer. The wheel motors offered under Sulzer's REP are complete with brakes fitted and the utilisation charge includes the basic overhaul.

Our expertise means we offer a complete electromechanical service for heavy haul trucks. We carry out full repairs of wheel sets – servicing both electric motors and epicyclic gear reductions. A complete in-house approach ensures a reduced lead time for all repairs and a single point of contact.

Wheel motor testing



Reconditioned wheel motor exchange ready to be shipped



Mobile equipment support

Electric drive haul truck

1 Wheel motors



- Rebuild and return of customer's cores
- Flexibility and Capabilities of modifications to suit Customer's needs.

Machines & components

- Kotmasu 730E-DC
- Hitachi EX-3500 AC
- Hitachi EX-4500 AC
- Hitachi EX-5000 AC
- Belaz 75131 DC
- Belaz 75135 DC

2 Alternator



- Upgraded with improvements to increase MTBF and reduce TCO
- Dedicated core programs tailored to suit customer's requirements

Machines compatible

- Kotmasu 730E-DC
- Hitachi EX-3500 AC
- Hitachi EX-4500 AC

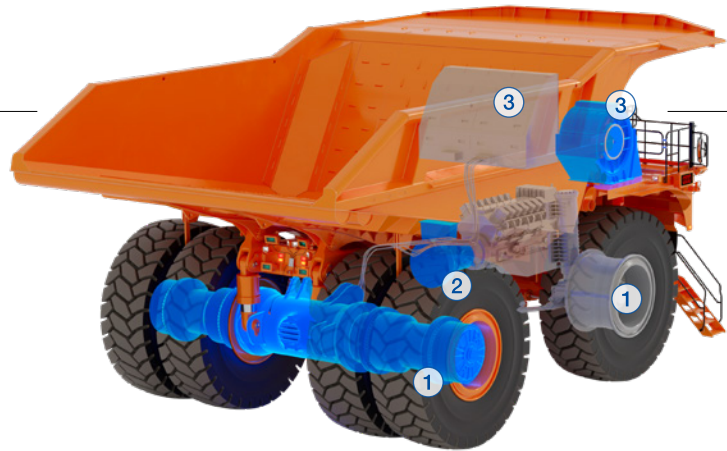
3 Grid blower



- Upgraded with improvements to increase MTBF and reduce TCO
- Dedicated core programs tailored to suit customer's requirements

Machines compatible

- Kotmasu 730E-DC
- Hitachi EX-3500 AC
- Hitachi EX-4500 AC



Current models serviced

- P&H MinePro 2800XPA
- P&H MinePro 4100A
- Komatsu PC-3000(DC)
- DC Electric Shovels

Current components serviced

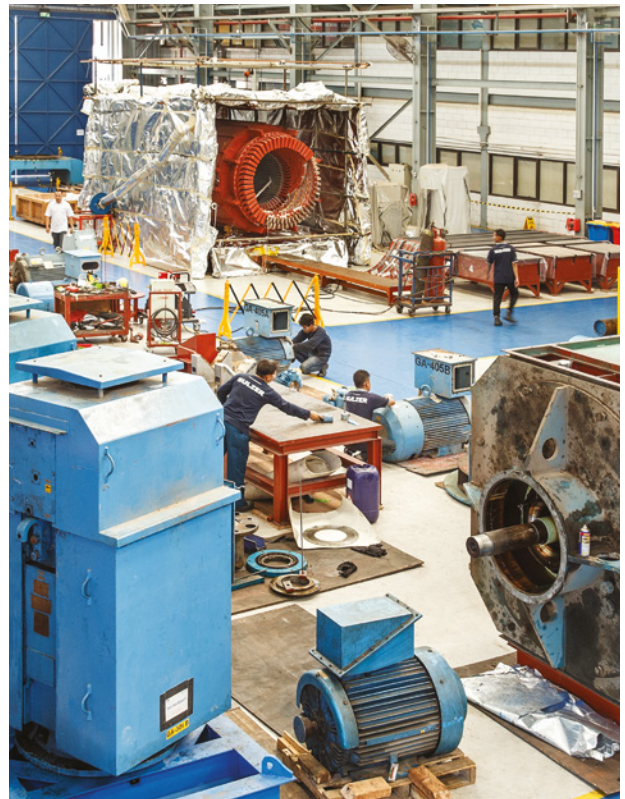
- Main Motion Motors (AC and DC)
- Generator Sets
- Brakes
- House fan Units
- Blower units
- Transmissions
- Onsite Commutator Profiling and Machining
- Onsite Motor Testing



Electric Rope Shovels

Motor services

- HV & LV-DC and AC motors.
- Complete repair, overhaul and rewind services for a range of motors regardless of the original equipment manufacturer.
- In-house coil manufacturing ensures a seamless service experience.
- Benefit from a global network of Ex certified service facilities with repairs for the full range of hazardous area motors.
- Life-extension of legacy equipment through rebuilds, bringing a second life to your motors with better performance.
- Saves costs on CAPEX while delivering a lower carbon footprint through optimising current equipment versus buying new equipment which incurs a much higher overall carbon footprint on supply chains.



Key services

Generator services

Sulzer offers a comprehensive service for all generators from both conventional and renewable power sources. With decades of experience, our technicians can deliver turnkey projects for any brand of generator with 2-48 poles and power outputs between 500 kW and 600 MW, including wind turbine assets.



Control systems

We can also evaluate and optimize the control systems for all rotating machinery. The Sulzer Control Package improves both the performance and reliability of your equipment. Fans and blowers



We offer a turnkey service for all blowers and fans, including overhauls, repairs and the supply of spare parts, irrespective of the original equipment manufacturer.

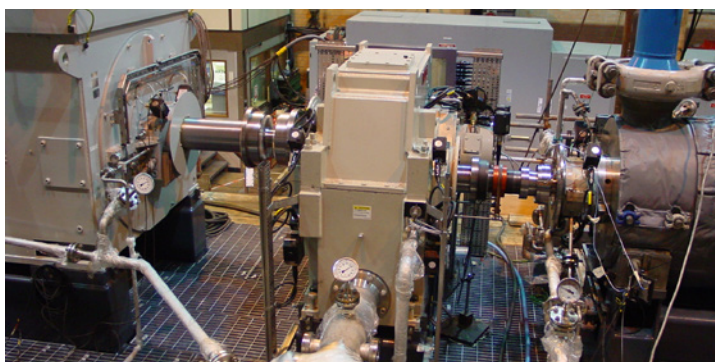
Maintenance contracts/LTSA

Reliable contracted plant and equipment solutions to help you manage through-life costs and reliability of your turbomachinery. Clearly defined performance indicators and managed risk transfer ensure that you only pay for solutions benefiting your operations.



Electrical BOP and ancillaries

Sulzer provides an extensive range of balance of plant (BOP) services for electro-mechanical rotating equipment such as motors, blowers and many other types of asset. Use our BOP services either on a planned or an emergency basis to maximize the reliability of your operations.



Reverse engineering

Experiencing difficulty in sourcing parts and components for discontinued or obsolete machinery? We'll help extend the lifespan of your equipment by reverse engineering replacement parts, ensuring all materials and dimensions are identical or improved where possible.



Retrofits

We perform thorough technical analysis (including rotor dynamics, bearing, seal etc.) of your equipment to determine suitable modifications required to improve the performance of your equipment.



Bearing services

We replace white metal in bearings of all sizes, from small to large (over 500 mm) using high-quality centrifugal casting for complex bearing repairs, and manual casting for large bearing repairs. We offer upgrades to lube oil systems or bearing geometry to help resolve repetitive failures.



Machining

Machining is of major importance in any repair process. Numerous techniques and precision machinery are used to achieve exact dimensions and material specifications for all repaired components. From dimensioning a shaft after metal spraying or welding to grinding chromium plated rollers and manufacturing new gears, Sulzer has the facilities to deliver.



Lifetime assessments

Turbine rotors of gas and steam turbines can be greatly affected by stress, fatigue, corrosion, embrittlement or cracking. Maximize the lifespan of your rotor with our thorough assessment services.

Asset reconditioning

All machinery suffers from wear during normal operation and proactive maintenance ensures that any loss of efficiency is kept to a minimum. Our in-house facilities and personnel can recondition all types of process equipment, such as engines, compressors, crushers and gearboxes, to optimum condition using the latest materials and engineering tools. We reclaim assembly components using a wide range of material replacement techniques, thereby both improving performance and extending equipment lifetime.

Root cause analysis

Gain a better understanding of the specifics that can lead to early component failure. We offer analysis on metallurgical evaluations, rotor dynamic analysis, finite-element structural analysis, field vibration data and more.

Dynamic balancing

We provide balancing services both at our workshops and on-site, using the very latest electronic precision balancing equipment. Workshop capacity ranges from 0.1 kg to 54'400 kg (0.2 lbs to 120'000 lbs) and to a maximum length of 9 meters (30 feet). Most components can be accommodated and balanced either to a specific tolerance or the applicable ISO or API specifications.



Surface engineering and thermal spraying

We offer surface engineering and thermal spraying to ensure optimal performance. Sulzer can engineer the most suitable surface or coating to improve the performance of a component using varying techniques such as hard chromium electroplating, nickel electroplating and thermal spraying etc.

Case study: Sulzer mitigates deadly mining risks with tight fan repair turnaround

Service: Motor repair, parts supply

Location: Indonesia

Customer: A leading international metals company

Project key facts

Equipment capacity

5MW

Repair Lead time reduction

150 days

Cost savings compared to new CAPEX

60%



Challenge

The customer operates one of the largest copper and gold mine in Papua, Indonesia. Fresh and constant airflow is crucial to keep miners working at such perilous depths safe. This is achieved through fans powered by high-voltage electric motors. One of the fans short-circuited, where:

- A Megger test conducted on the IR stator winding failed.
- Several stator winding coils had burned.
- The 5,000 kW Toshiba fan motor was dusty and severely corroded.

Solution

The customer requested an expedited repair due to the critical nature of the equipment. We agreed and committed to a repair timeline of four weeks and three days (including time to conduct a test run without load), initially suggesting a maximum of 6 weeks.

The customer supplied new Resin rich coils, RTDs, lead cables, and an ancillary winding kit. We conducted a thorough inspection of the motor identifying significant corrosion, light rubs, scuffing, and missing parts.

The rotor, stator, bearing, seals and blades were all overhauled, repaired or with necessary parts replaced swiftly, to meet the agreed time-frame.

Impact

Thanks to Sulzer's fast-acting repair and expert mitigation strategies, the mine operator maintained safe working conditions for its underground miners and experienced no critical downtime throughout its operations. Had the customer gone for an equipment replacement, the cost difference would have been 2.5 times of the repair cost at 60%, with a much longer lead-time of 6 months.

Case study: Getting generator back online in record-time with best-in-class technical expertise

Service: Root-cause analysis, reverse engineering, coil manufacturing

Location: Kalimantan, Indonesia

Customer: Major Cement Producer

Project key facts

Generator capacity 55MW

Project delivery lead time

12 weeks

Roebel bars engineered

48 Top & 48 bottom bars



Challenge

Production at the cement plant came to a complete halt due to outage in its generator, which the plant relies as its sole independent power source at a remote location in Indonesia. The breakdown of the 55 MW generator was caused by strand-to-strand faults that eventuated into a stator connection phase ground fault. Due to the excessive amount of winding oil contamination from a leaking bearing labyrinth seal, the ground fault flash resulted in a stator fire. With orders due and reputation at stake, the customer needed to salvage the situation or risk alienating its customers.

Solution

Sulzer's technical proposal came in tops amongst all other proposals where the OEM and other vendors could only deliver the solution in more than 6 months.

A thorough investigative inspection by Sulzer's experts revealed that the failure was attributed to the stator winding design having parallel stranding, which caused high circulating currents. Sulzer's targeted solution involved reverse engineering new 360° Roebel bars which none of the competition offered, in record lead-time of 12 weeks. Tapping into the company's global network and expertise, the Indonesia team collaborated closely with experts from the Birmingham service center in UK where the bars were engineered.

To alleviate the plant's order fulfillment pressure, Sulzer's EMS experts did a quick partial repair to the failed stator windings so that the customer could work through their material stockpile and meet existing orders

Impact

The benefits of switching to Roebel bars were quickly apparent. Winding temperatures were greatly reduced, allowing the generator to be run more efficiently, providing energy cost savings to the cement plant. In terms of reliability, electrical circulating currents were all but eliminated, greatly reducing the risk of any future premature failures. Reduced winding temperatures also meant less thermal stresses on the winding insulation, improving service life. With the generator up and running, the pressure on the customer's other facilities was alleviated too, with the plant now operating at full capacity.

The Sulzer Services division is your partner for uptime and enhanced performance for your rotating equipment and more. Our dedicated people provide unrivalled service and expertise to meet your operational needs – anytime, anywhere.

Through a network of over 100 service sites around the world, Sulzer provides cutting-edge parts as well as maintenance and repair solutions for pumps, turbines, compressors, motors and generators. We service our own original equipment, but also all associated third-party rotating equipment run by our customers, maximizing its sustainability and life cycle cost-effectiveness. Our technology-based solutions, fast execution and expertise in complex maintenance projects are available at our customers' doorsteps.

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