

# Tele-remote operations system at Freeport Mine, Indonesia

Industry & Mining



## Customer challenge

Global engineering group Sandvik has a strong focus on health and safety.

At Freeport mine in Indonesia, Sandvik has four main objectives:

- Increase operational safety by removing rock breaker boom operators from hazardous underground areas.
- Increase rate of extraction.
- Improve operators' working environment.
- Introduce constant monitoring of rock breaker booms, thereby increasing equipment service life and reducing maintenance costs.

## Cavotec as a partner

Sandvik selected Cavotec based on our extensive experience of radio remote control and Human Operator Interface (HOI) systems. Cavotec engineered a tele-operation system that extended the sensing and manipulation capabilities of rock breaker operators at a remote location. These machines are now operated from a control room, guaranteeing safe working conditions and a pleasant environment with air conditioning, less noise and improved visibility.

Cavotec tele-operation systems include control room equipment, (screens, control chairs and radio remote controls), and a video system installed on rock breaker booms. To ensure constant monitoring and increase machines' lifespan, the tele-remote system provides a broad range of functions such as:

- Hammer and pump operating hours.
- Ambient conditions (pressure and temperature).
- Malfunctioning signals (oil temperature, oil level, e-stop circuit, clamp position etc.).
- Oil condition (cleanliness and water concentration).
- Time to next scheduled maintenance.

## Operator

Sandvik Mining and Construction

## Application

Rock Braker Boom

## Location

Freeport Mine (Indonesia)

## Date of installation

2012

## Cavotec solution and scope of supply

Turnkey tele-remote system:

- Equipment on rock breaker booms: video system on approx. 30 of rock breaker booms; complete control units, cameras and video audio stream back to control room.
- Communication network based on fibre optic.
- Control room equipment: screen, control chairs and radio remote controls.

## Main benefits

- Considerable improvement in safety due to enabling operation away from hazardous areas and accurate control and monitoring.
- Improved operator efficiency.
- Reduced maintenance costs.
- Robust system able to withstand harsh mining environment (dust, humidity, extreme temperatures).

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Control room, Freeport Mine



Underground remote operation, Freeport Mine



System overview

