BRUKS Siwertell
BULK HANDLING & WOOD PROCESSING



UPGRADED AFTER 30,000 HOURS OF OPERATION

Five large Siwertell coal unloaders supply fuel to the 4,200MW Mai Liao power plant; the third largest operating in Taiwan. Three of these were delivered by Siwertell in 2001, and two in 2006. Last year one of the older machines received major electrical and mechanical upgrades after 12 years and 30,000 operational hours to ensure peak performance for many years to come.

Electrical and mechancial modernisations

After 30,000 hours of operation, the upgrades on one of five Siwertell unloaders at the Mai Liao Power Plant in Taiwan ensure that the operator has a unit that will maintain peak performance for many years to come. The 2,000t/h rated capacity unloaders are installed on a long quay typically discharging ships of up to 180,000 dwt. "The electrical and mechanical upgradehas secured a significantly extended service life for the unloader and assures optimum operative availability," says Daniel Frostberg, Director Bulk Handling Services."The upgrade process included about ayear of preparation, beginning with a fullinspection of the unloader. In consultation with the owner we decided what needed to be replaced and what could be repaired."



We always finda way

Over the following year, Siwertell prepared all the necessary equipment and drew up a schedule of works. The refurbishment plan included five electrical upgrades and several distinct mechanical upgrades. "We estimated that the work would take around nine weeks," says Mr Frostberg.

To carry out the work the unloader had to be substantially dismantled. "To lower the 150t horizontal arm and counterweight we used two cranes with SWLs of 400t and 800t. We needed these massive cranes because we had to position them 37m from the lifting point as there were buildings in the way. It takes three days to deliver and construct the 800t crane, and another three days to dismantle and take it away again. This demonstrates that we can always find a way to carry out our work, regardless of constraints, including how the local situation may have changed since a machine was originally installed," he highlights.

New-generation hardware and software

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Following the electrical upgrade to thelatest design, the unloader now enjoys the best possible performance for long-termuse; the new system is more reliable thanks to new-generation hardware and software. The latest Siwertell automation software, which is included in the upgrade, reduces stress on the structure and on the installed machinery.

Spare parts availability is also greatly improved. The upgraded operating system includes SiMon(Siwertell monitoring system), the human machine interface (HMI). The control panel has a TWIN radio remote control system for all movable functions. TWIN employs two different frequencies and two antennas working in parallel
with each other.

"This ensures that thesystem is very reliable and the customer can avoid any disturbances from external electrical equipment," Patrik Ekstrand, Electrical Surveyor, explains. "We provided a comprehensive operator training programme for the new system."

The mechanical upgrades on the unloader included a replacement slewing ring, rust removal and renewing the cable slack arrangements inside the lower turret. Despite some problems, including a crane breakdown, the work remained on schedule and by week nine the unit was ready to start the re-commissioning process.

Upgrades are cost-effective

"Siwertell's unloaders are extremely rugged, generally operating in hostile conditions. The levels of wear and corrosion they experience are influenced by factors including the local environment, materials handled, operational hours and the effectiveness of service and maintenance arrangements," says Lennart Nilsson, Senior Mechanical Engineer. "Our engineers have unrivalled experience with major mechanical and electrical upgrades, often carried out under challenging conditions to a defined timeframe. Significant upgrades of this nature are invariably very cost effective."