Case study

VentSim™ CONTROL ready fans to end need for retrofits

When one of the biggest and most important gold and silver mines in Mexico chose to install a highly advanced ventilation management system, its remote, mountainous location presented an interesting challenge and offered a valuable lesson.

Despite the difficulties of access and logistics, the operation is one of the most technologically advanced deep mines in the world, and incorporates VentSim™ CONTROL ventilation management. Determined to maintain their position at the forefront of mining technology, they asked Howden to add VentSim™ CONTROL to their existing fans.

The challenge

The VentSim™ CONTROL system monitors activity throughout the mine and measures air flow, gases, static pressure and quality at various locations, then uses that data to govern fans and ensure that adequate supplies of fresh, safe air is present wherever work is being done. The fans must therefore incorporate suitable control mechanisms. While we can supply any fan as 'VentSim™ CONTROL ready', in this case the operators were using fans that were either already in operation or were soon to be installed by a third party supplier, and the control mechanism had to be retrofitted.

The mine is set in mountainous terrain, and subject to extreme weather. To add to the difficulties, the main ventilation fans, each one a 400hp surface mounted unit, are separated from each other by distances of between 500m and 3km. The process of installing the instrumentation required a great amount of logistics and specialized work to be carried out on-site on the four fans already installed and the eight more that were awaiting delivery.

Our response

Firstly, we carried out a series of tests and trials at our Montreal base to confirm that our PLCs would work satisfactorily with the specific fans, and to determine the optimum methodology for the project. We then devised a detailed plan for the logistics and on-site engineering. In both the planning and the execution, we were acutely aware of the engineering risks involved from the procedures required.

Because the retrofit would require the fan to be shut down, we scheduled the work in consultation with the mine operators to minimize lost production, then arranged for readiness of the electrical equipment, as well as the required specialist personnel, to be delivered to the site. While the complexity and location meant that a full week would be required to carry out the changes to the four existing fans, the work was successfully finished on schedule, and arrangements were made to begin work on the next eight as soon as they had been installed.

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The outcome

The project delivered a reliable and highly efficient Ventilation on Demand (VOD) system, reducing energy costs while ensuring complete safety.

However, the exercise of retrofitting the associated PLCs and ancillary equipment to existing fans, especially in such a remote and challenging location, involved many man hours of engineering time and significant transport costs.

These costs could have been avoided by installing VentSim™ CONTROL ready fans. Designed and built ready to be added as plug-and-play components of a fully expandable VentSim™ CONTROL network, they can be installed in around an hour without any specialist knowledge.

For the next phase of the mine's development, the operators have already decided to install Howden VentSim™ CONTROL ready fans. These can be quickly installed and immediately integrated into the existing monitoring and management infrastructure by non-specialist staff, keeping the mine at the leading edge of technology and safety with minimum cost and disruption to production.