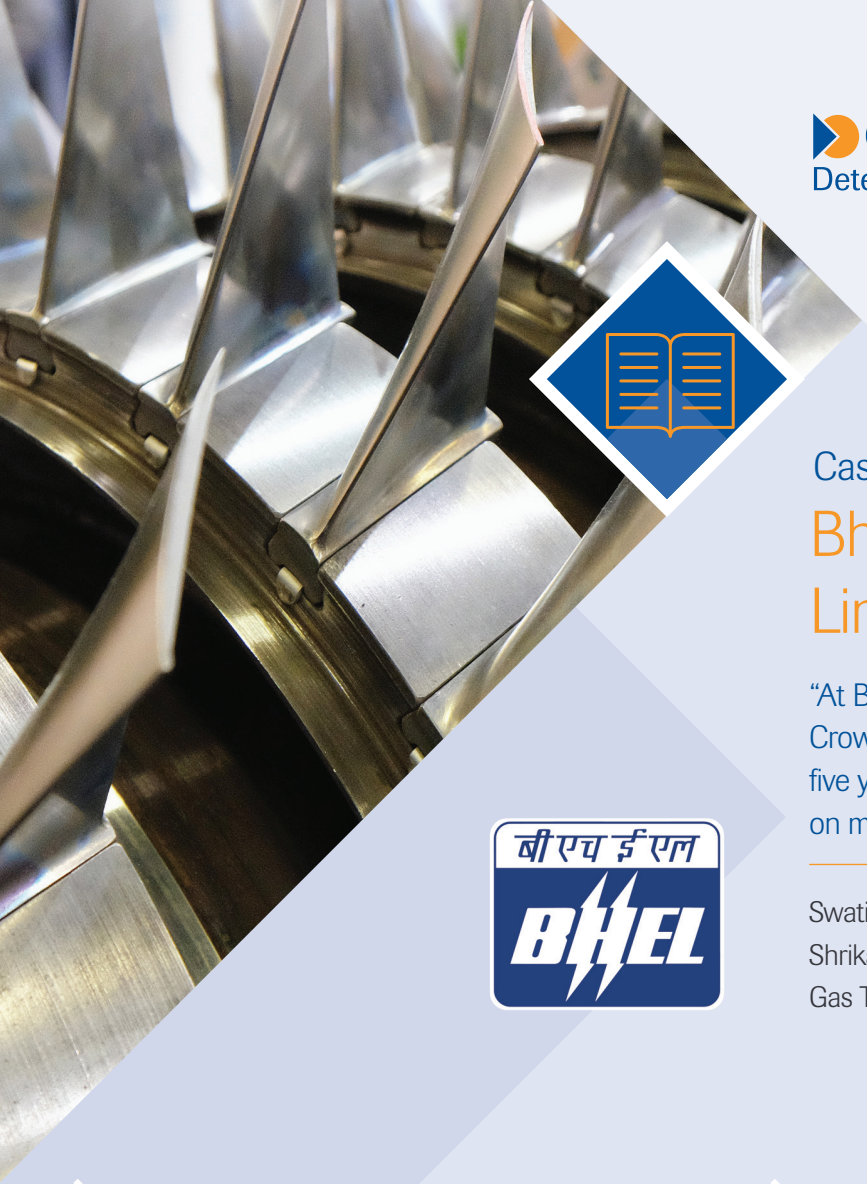

CROWCON
Detecting Gas Saving Lives

Case Study

Bharat Heavy Electricals Limited (BHEL)

"At BHEL we have been very satisfied with the Crowcon range of products and their performance for five years, and we look forward to working together on many more complex solutions of this type."

Swati Goli, Deputy Manager and
Shrikanth Kolukula, Manager –
Gas Turbine Engineering, BHEL

The Background

Established in the mid-1950s, Bharat Heavy Electricals Limited (BHEL) now ranks among the largest engineering and manufacturing businesses in India and is one of the world's top ten manufacturers of power generation equipment.

Today, it has a place in almost all key economic sectors – as well as producing power generation equipment, BHEL serves clients in oil exploration, refinery, fertiliser and petrochemical, steel and other metals, cement, sugar, transport and non-conventional energy.

The firm has an impressive network of manufacturing units at various key locations across India, where it makes almost all of the critical and high-tech products that its clients need.

It also has a history of high-profile and successful technical collaborations and strategic alliances with other world-leading firms.

The Requirement

BHEL's Hyderabad (Ramachandrapuram) unit is one of the enterprise's most important sites and makes a major contribution to BHEL's overall business activities. The Hyderabad operation was established in 1963 and initially produced turbo generator sets and auxiliaries for 60 and 300 MW thermal utility sets.

As time passed, the unit increased and diversified its range and today it manufactures many different items for multiple sectors.

Examples are gas turbines, steam turbines, compressors, turbo generators, heat exchangers, pumps, pulverisers, switch gears, gear boxes and materials for oil rigs and project engineering.

The BHEL Hyderabad unit has also collaborated with major enterprises such as General Electric, Siemens and Nuovo Pignone.

Recently, BHEL Hyderabad required a solution that would alert the workforce at the end user's site to the presence of combustible gas mixtures (in particular, high temperature methane) in gas turbine compartments and associated gas fuel module compartments, liquid fuel modules and inlet systems. The system was required to detect gas leakage beyond the safe LEL and thus to protect the gas-based power plant and refineries system.

The Approach

BHEL needed an efficient gas monitoring system that would alert operatives to the presence of combustible gases in gas turbines and detect leaks that exceeded the safe LEL.

Since the detection of methane around a gas turbine occurs at high temperature, the solution had to include detectors able to cope with extreme heat. BHEL turned to Crowcon.

Together, BHEL and Crowcon created a smart integrated solution whereby a combination of the Crowcon **Gasmonitor Plus** controller and five **Xgard Type 4** gas detectors are used to protect the client's system and surrounding areas from hazardous gas, specifically high temperature methane.

Each system uses both a gas detector alarm system and an additional, local, audible alarm that is accompanied by the flashing of an orange beacon whenever the system detects an appropriate level of gas.

The system can trigger several warnings according to the event, with alarms indicating that (1) one sensor detects alarm-level LEL and the second sensor is faulty, (2) one sensor detects high LEL and the other sensor detects low LEL or (3) both sensors detect high LEL.

Crowcon Gasmonitor Plus controller

The Outcome

BHEL purchased seven **Gasmonitor Plus** racks and accessories, and each of these has been integrated with five **Xgard Type 4** gas detectors, which are placed in the areas around the turbine.

The **Xgard Type 4** detectors have an operating range of -20 to +150ºC, so they cope superbly with the high temperatures involved in this case. All parties and end users are delighted with this innovative and perfectly tailored solution.

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