

CASE STUDY



Special manifolds for
industrial gas turbines



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Inspired By Challenge

Special manifolds for industrial gas turbines

A global player in the energy sector approached Habonim for a manifold valve solution. The traditional design uses multiple valves at different locations in the gas turbine, with long lengths of piping stretched throughout. This design creates a safety hazard due to poor controlability and complicated accessibility. The dispersed valves also require many interconnections, resulting in high installation costs and leak paths.

The challenge was to **design a reliable and compact valve solution** to secure gas tight shutoff, handle multiple pressure levels without internal backflow, and to manage a design temperatures as high as 600°C. Sampling valves also had to be integrate into the manifold valve in order to measure and verify that the turbine cleaning condition.

Habonim's engineering team stood up to the challenge with a manifold valve solution that works in a **confined space, guarantees minimum leak paths, is equipped with a reliable locking system**, modular in design and -- on top of it all -- cost-effective compared with the traditional solution.

The Habonim Solution

Using the unique fire-safe valve design as the basic module, Habonim designed an 8-valve, lockable manifold including 3 off sampling ports (needle valves). The multi-port manifold design also incorporated a special locking device to ensure that all valves are closed when the turbine is in operation. The solution also included a limit switchbox that transmits a signal to the PLC-system once the valves are closed and secured.

The machined manifold block eliminates the need for multiple welding and NDT-examination – increasing the accuracy of the block while reducing overall costs. The manifold configuration reduces to a minimum the number of leak paths and the risks of fugitive emissions, thus enhancing site safety.

The manifold has an extremely small footprint and lightweight, allowing smooth in situ installation of the unit. The accurately machined block allows a stress-free installation of the manifold valve to the gas turbine.



A special locking system was designed to securely locks all the valve handles during turbine operation



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