Low NPSH pump has cavitation under control

LOOS INTERNATIONAL, GUNZENHAUSEN IN GERMANY, IS KNOWN ALL OVER THE WORLD FOR ITS EXPERTISE IN BOILER MANUFACTURE. THIS KNOW-HOW WAS ACQUIRED DURING THE COURSE OF A COMPANY HISTORY GOING BACK AROUND 140 YEARS – THE COMPANY HAS NOW DELIVERED ALMOST 100,000 INDUSTRIAL BOILER SYSTEMS IN MORE THAN 140 COUNTRIES. EVERY YEAR THIS BOILER SPECIALIST PRODUCES MORE THAN 1,250 BOILER SYSTEMS IN MODERN PRODUCTION FACILITIES IN GERMANY AND AUSTRIA.

TOPIC:

No cavitation - Easy planning - Reduced installation time - Optimised performance

LOCATION:

Germany

COMPANY:

Loos International, Gunzenhausen

With more than 800 pumps installed every year, Loos is one of Grundfos' biggest customer in the field of boiler feed pumps. Time and time again the company makes its mark as a technological trend-setter.

THE SITUATION

"We'd long had the idea of developing a modular concept. But efforts were delayed by the fact that the original pumps had too high an NPSH requirement. In order to avoid cavitation, the feed water tank had to be located one floor above the boiler – making it impossible to use compact modular technology. We therefore took our ideas to Grundfos," explains Dipl.-Ing. Paul Köberlein, the man with overall responsibility for the Plant Engineering area at Loos, describing the starting point back in 1999.

THE SOLUTION

In order to avoid cavitation you must reduce the NPSH value of the pump (NPSH: net positive suction head, designating the required pre-pressure for the pump). In the multi-stage Low NPSH pump designed for Loos, the first impeller used is a version with particularly good suction performance: among other

features, this impeller is (in terms of volume) larger than would be required for the operating location; the geometry of the shaft and the chamber was also changed.

The current modular construction technology that Loos is offering its customers (“It’s a big hit on the market!”) was only made possible by this jointly developed Low NPSH pump.

THE OUTCOME

Boiler systems in modular technology are currently state-of-the-art at Loos: the multifunctional construction groups (water-softening module, water service module, steam header module, etc.) make planning easier, reduce installation time and optimise performance. In particular they reduce interfaces, giving users greater reliability of supply.

One of the main advantages of modular technology is that modules can be completed at the factory: all boiler house modules are supplied to the user ready to connect (hydraulically tubed, heat-insulated and electrically wired) and in high quality as a complete functional unit. Comprehensively tested and ready for immediate operation!

Speed regulation provides additional benefits: because the “steam boiler” system runs most reliably when any “disruptive” processes are avoided in the feed water intake. In combination with a variable-speed motor, the Low NPSH boiler feed pump offers stable and at the same time very economical performance. In the performance range up to 7.5 kW, the savings generated compared to alternative control costs using a control valve and bypass are 15 to 20%. These are pure investment costs – they do not take into account the improvement in operational reliability of the speed-regulated solution. “The Low NPSH pump from Grundfos performs its tasks magnificently,” says Paul Köberlein.