Reliable under pressure

Used to protect pumps and installations, Schroeder automatic recirculation valves help guarantee plant safety in Southeast Asia's most efficient combined cycle power plant.

The combined cycle power plant in the city of Seberang Perai operates with an efficiency of more than 60 percent

Malaysia is an up-and-coming threshold country, whose industrialisation has been proceeding quickly since the 1990s. This development has an impact on the demand of electricity in this Southeast Asian country: it has increased by an average of approximately four percent every year. In order to keep up with the power demand of its 31 million citizens and of the growing number of industrial facilities, Malaysia is investing in the construction of new and efficient power plants.

One of the most advanced facilities for power generation is operating in the city of Seberang Perai in the region of Penang: the combined cycle power plant with gas fired turbines of Prai. Due to its performance of roughly one gigawatt and its efficiency of more than 60 percent it is the most powerful and efficient power plant in Southeast Asia. It produces nearly seven percent of the amount of energy in Malaysia. It is being operated by Tenaga Northern Bhd. (TNBP), a fully owned subsidiary of the power supplier Tenaga Nasional Berhad.

The Siemens 50-Hz-H-Class power plant comprises two so-called Power Trains consisting of one state-of-the-art gas fired turbine, one water-cooled generator and one steam turbine with auxiliary systems each. Here, two units with three centrifugal pumps by the Korean pump manufacturers Hyosung Goodspring are in use. These pumps are being protected by six high pressure valves by the German specialists for protective pump fittings, Schroeder Valves.

Automatic recirculation

These SHP („Schroeder High Pressure Valve") valves withstand the highest of pressures and work reliably even under highly fluctuating pump loads. This makes the SHP the perfect valve to protect the pumps in the Malaysian power plant from damages which may be caused when the flow rate is falling below the permissible minimum.

The innovative design of the automatic recirculation valve ensures that the pumps and installations are being protected in situations involving highly fluctuating pump loads and long periods of operation under extreme partial load conditions. This is being achieved by a fully automatic minimum flow control system, which ensures the release of a modulating adaptive minimum flow.

The SHP builds on existing Schroeder Valves technology. The company has already got decades of operational experience with almost all of the effective principles and assemblies used. Thus, the SHP may be considered ‚Proven Equipment'. The individual system components were merely modified and combined in an innovative way, so as to enhance the dependable and low-wear area of application of the existing technology to meet the increased requirements. The new SHP-series automatic recirculation valve therefore enables and promotes the energy-efficient operation of modern power plant facilities.

Prai's operators are very pleased with the performance of the valves. The Senior Technical Engineer at TNBP states: "Since their initial commissioning, the SHP valves have been in permanent use. They have protected our installation reliably and without any problems."