Modernization of Overspeed Detection
Steam turbines DG/DK

MAN PrimeServ provides a contemporary overspeed detection system in order to modernize obsolete steam turbine protection systems.

Challenge
Steam turbines are operated in different applications as mechanical drives for compressor trains or as generator drives for power generation. Furthermore, steam turbines are used for the supply of constant pressure process steam using the surplus energy to drive compressors or generators. The speed of the steam turbine is controlled by the speed control system according to the requirements of the main process. Speeds exceeding the design limits of the steam turbine train may lead to significant damages due to enhanced mechanical load on the bearings and the rotating components. In order to protect the steam turbine train against overspeed damages the speed of the steam turbine is continuously observed.

Modernization Solution
To modernize the speed monitoring and the overspeed protection of existing steam turbine trains MAN PrimeServ provides a high safety triple modular redundancy overspeed detection system. The modern overspeed detection system is based on a Braun E16E3xx overspeed detection unit, whereas also other platforms as for example Turbolog, Bently Nevada or Woodward can be realized. Depending on the existing unit configuration the modernization concept further contains the modernization of the machine sensors and the installation of an online testable hydraulic solenoid trip valve block with a 2 out of 3 voting. The consistent use of industrial standard components supports the long-term availability of spare parts and technical support.
Benefits

The modern overspeed detection system provides reliable protection of the steam turbine train against possible damages due to overspeed:

- Triple modular redundancy overspeed detection unit for reliable tripping of the steam turbine in case of overspeed
- Online testable 2 out of 3 trip valve block for reliable feeding of trip valve
- Compliance with relevant safety regulations as IEC 61131-2, EN ISO 13849, DIN EN 61508, DIN EN 62061, DIN EN 61511, DIN EN 60204, DIN EN ISO 12100, ISO 21789 API 670, API 612
- Adaption to individual requirements

Comprehensive Modernization

MAN PrimeServ provides comprehensive modernization concepts to modernize your equipment - no matter if you want to optimize reliability, operating costs, environmental sustainability or any other characteristic of the equipment. Please contact us for further information.