

Press Release

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Vorecon Variable Speed Planetary Gears Control Boiler Feed Pumps in New Polish Coal-Fired Power Plants

The Vorecon variable speed planetary gear exemplifies maximum reliability and efficiency – even in power plants with supercritical steam parameters. This includes the two new coal-fired power plants in Poland, Opole and Jaworzno III. With the slogan "We Drive Your Productivity," Voith will present a model of the Vorecon to visitors to Stand 1O12 of Power-Gen Europe in Amsterdam from 9 - 11 June 2015.

Poland will invest about EUR 25 billion by 2024 in the expansion and modernization of its power generation sector. For its new power plants the country is relying on coal, in addition to gas. Jaworzno III, which will come online in 2019, will achieve gross installed electric power of 910 MW. In Opole, two new units of 900 MW each will help cover the future base load. Both power plants are designed with supercritical steam parameters and are among the most efficient power plants in Europe. The advanced systems operate at temperatures of up to 600 degrees Celsius under pressures of up to 300 bar. This increases the energy efficiency of the steam process; coal is used more effectively. As a result, the power plants generate more energy from the same amount of fuel, while emissions fall. The future operator of Jaworzno III estimates the reduction in CO₂ emissions at one quarter.

The speed of the boiler feed pumps in both systems will be controlled by type RW Vorecon variable speed planetary gears with power of 13 and 18 MW, respectively. The Vorecon from Voith combines speed control system, gearbox and oil supply into one unit. As a result, it achieves efficiency exceeding 95 percent and, at the same time, minimizes the number of accessories required. The resulting overall efficiency is up to two percent higher than with electronic control – for operators, this means a crucial reduction in operating costs, particularly in a high power range.

Used as base load power plants, reliable operation is a decisive factor for the units in Jaworzno III and Opole. The results of a study from 2013 speak for themselves. The Vorecon provides compelling numbers with a mean-time-between-failures (MTBF) of 48 years and a statistical reliability of 99.98 percent. The wear-free control using hydrodynamic power transmission in conjunction with a mechanical system of robust design renders trouble-prone power electronics unnecessary and triples the life cycle of the control component in comparison with electronic solutions.

In contrast to traditional drivelines with steam turbines, the boiler feed pumps of both new Polish power plants are driven by electric motors.

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Voith Turbo, a Group Division of Voith GmbH, is a specialist for intelligent drive solutions. Customers from highly diverse industries such as oil and gas, energy, mining and mechanical engineering, ship technology, rail and commercial vehicles rely on advanced technologies from Voith Turbo.

Voith sets standards in the markets energy, oil & gas, paper, raw materials and transportation & automotive. Founded in 1867, Voith employs more than 39 000 people, generates €5.3 billion in sales, operates in about 50 countries around the world and is today one of the largest family-owned companies in Europe.

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