

Press Release

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Where top performance is demanded - Voith fluid couplings are used in a 4.8 MW belt conveyor drive in China

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When high reliability and power are needed, the mining company Xishan Jinxing Energy Co. Ltd relies on the fill-controlled 866 TPKL fluid coupling from Voith. A total of three fluid couplings are used underground in the powerful 4.8 MW drive of the main belt conveyor in the Xiegou No. 12 coal mine in Shanxi Province, China.

Three 1600 kW (1900 HP) drives power the 1900 metre (6200 feet) long main inclined belt conveyor. This conveyor transports 3 800 metric tons of coal every hour. Powerful and reliable couplings are required. For the mine operator, the 866 TPKL fluid coupling from Voith is the best solution on the market.

Through controlled application of torque, the fluid coupling pretensions the belt slowly and permits smooth conveyor start-up. This controlled soft start protects the belt and driveline components and extends their lifetime. As a result, the Voith fluid coupling reduces unplanned downtime – the operator benefits from lower maintenance costs and continuous production. Regardless of the load state of the belt, start-up times of up to three minutes are possible. Thanks to stand by cooling of the operating oil, the 866 TPKL fluid coupling also permits multiple conveyor start-ups in succession, even when the belt is loaded.

The mine operator is very satisfied with the performance of the 866 TPKL. In contrast to other solutions, the compact fluid coupling is also very capable of withstanding extreme environmental conditions such as dust, dirt, moisture, heat or cold.

As in every hydrodynamic coupling, power transmission in the 866 TPKL is virtually wear-free. For the operator, this translates into lower maintenance and repair costs for the coupling. In addition, motors start up independent

of the machine load, and through sequenced starting of the motors, the fluid coupling reduces the load on the power supply circuit.

An additional benefit of the 866 TPKL is its ability to operate with reduced filling to drive an empty conveyor at a reduced speed. During the creep speed operation, less power is transmitted and the belt runs more slowly. This function is useful for the visual inspection of the belt and splices. In the Xiegou No. 12 coal mine, the fluid couplings were operated in the partially filled mode during commissioning to be sure that the belt was tracking properly. With the fluid couplings operating in the partially filled mode, the belt speed could be reduced to 1.2 – 1.7 m/s instead of operating at the rated speed of 4.5 m/s.

Until now, the coal mine has been operating at the initially planned production capacity of 15 million metric tons of coal per year. The operator plans to increase production capacity in the next one to two years. This will require the main belt conveyor to be upgraded with a fourth drive. For this, the operator plans on installing an additional 866 TPKL fluid coupling from Voith.

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Figure 1: Powerful 866 TPKL fluid coupling from Voith protects the belt conveyor as well as the drive components against damage and prevents unplanned downtime.



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Figure 2: The Chinese mining company Xishan Jinxing Energy Co. Ltd relies on the powerful Voith 866 TPKL fluid coupling.

Voith Turbo, a division of Voith GmbH, specializes in intelligent drive solutions and systems. Our customers in the oil and gas, energy, mining and metals processing, marine propulsion, rail and utility vehicles industries rely on solutions from Voith.

Voith sets the standards in the energy, oil & gas, paper, raw materials and transportation & automotive markets. Founded in 1867, Voith employs more than 42,000 people, generates €5.7 billion in sales, operates in over 50 countries around the world and is today one of the biggest family-owned companies in Europe.

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