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East Asia’s largest Bucket Wheel Excavator – Success for Tenova Takraf’s BWE System at Zhahanaoer Mine in China

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In Inner Mongolia the specialists from Leipzig-based open pit mining equipment supplier Takraf installed an excavator-conceyor-spreader system, that is aimed at improving China’s lignite mining capacity.



Inaguration ceremony for the 6600 m³/h Tenova Takraf bucket wheel excavator at CPI Mongdong Energy Group’s Zhahanaoer open pit mine. (Pictures: © Tenova Takraf)

Open pit mining and underground solutions provider, Tenova TAKRAF, has completed the supply and installation of a complete bucket wheel excavator (BWE) system for Zhahanaoer open pit mine in Inner Mongolia, China. The system, which features the largest bucket wheel excavator-conveyor-spreader-combination of its kind in Asia, was inaugurated with a celebration held on site in late November 2014, attended by representatives of the client, CPI Mongdong Energy Group. The inauguration followed successful performance testing, which confirmed the high efficiency and reliability of the entire system and exceeded the expectations of all parties.



The newly inaugurated Tenova Takraf spreader at Zhahanaoer open pit mine in special illumination.

The Zhahanaoer open pit mine covers an area of 31.36 km² and holds an estimated coal reserve of 827.93 million tons of lignite extracted at various depths from 85 m to 356 m. The system consists of a large-scale bucket wheel excavator SRs 2000 (rated capacity 6600 m^3/h) with loading unit, a 7750 m long conveyor system consisting of 5 flights as well as a compact spreader with tripper

car on rails.With its boom length of 44 m the bucket wheel excavator is able to mine a step height of 30 m and a block width of 50 m. Although it has a service weight of about 3300 t, it has a much lower ground pressure than, for example, a D11 dozer.



7900 m3/h Tenova Takraf spreader at Zhahanaoer open pit mine in China.

In order to properly handle peak capacities the conveyor system as well as the spreader have a design capacity of 7900 m^3/h. Those conveyors running along the excavator bench and along the waste dump are shiftable, so that they can easily follow the progress of the open pit mine.The project commenced in September 2009 with the bucket wheel excavator, spreader and conveyor system awarded in three stages from 2009 to 2011. The complete turnkey project covered design, supply, transport, on-site installation, as well as commissioning including performance testing.



7900 m3/h Tenova Takraf conveyor system at Zhahanaoer open pit mine in China.

The project site is located approximately 700 km from Beijing in remote northern China, where the extreme climatic conditions see winter temperatures of down to -40 °C and summer temperatures of up to +40 °C. Despite these and other highly challenging conditions, the project teams achieved a smooth erection and commissioning process, completing the project on schedule in early November

2014.The project is regarded as an important milestone in the development of China’s mining industry, typified by a trend towards larger scale mines and mining equipment. It also provides another example of successful German-Chinese-cooperation, which was celebrated in an impromptu couplet by the client representative at the inauguration: “Casting a New Chapter of China-Germany-Cooperation on the Grassland, Dancing a Big Dragon of Hand-in-hand in Sea of Coal.”



Conveyor tranfer station at Zhahanaoer.

Tenova Takraf is a key supplier of equipment and systems for open pit mining, underground solutions and bulk handling, having provided hundreds of complete systems, as well as individual machines to clients all over the world in all climatic conditions.The Zhabanaoer open pit project continues the company’s success with the supply of bucket wheel excavator technology to China, following the delivery of two BWE systems to Yuanbaoshan in the 1990s.