

# Press Release

## Slip ring motor in zone 22 hazardous area Coal mill drive upgraded for dusty environment

Berlin – For a major inspection process, a Senegalese cement manufacturer had to replace their old coal mill and install a technically and mechanically compatible replacement motor in 2015. Tasked with this assignment, Menzel Elektromotoren from Berlin was faced with a particularly dusty challenge. The motor, which provides the plant with finely ground coal dust to meet the plant's primary energy needs, is operated in a hazardous area classified as zone 22. While ground coal offers better caloric properties than briquets, particles of conductive dust left on slip rings and brushes may cause sparks and lead to an explosion. The motor therefore required a design that would reliably prevent dust ingress during all operating stages.



**Illustration:** Ready for Ex zone 22: a slip ring motor, constructed by Menzel Elektromotoren specifically for the dusty environmental conditions at a coal mill

To meet these challenging requirements, the German manufacturer of custom motors engineered a rugged unit with IP65 ingress protection. Because a squirrel-cage motor requires a high starting current and has a lower starting torque, a slip ring motor was chosen. A special motor construction was then

devised for the application: the system features special terminal boxes for the stator and rotor, a non-magnetic cable entry plate, and hazardous area terminal clamps for the auxiliary terminal boxes. In addition, the motor housing is slightly larger to ensure the operating temperature does not exceed +125 °C. Additional fixing points between the radiator and housing facilitate tightening of the sealing in-between. The engineers also reinforced Menzel's standard viewing windows for the slip ring chamber with bolted covers and plexiglass to ensure proper tightness. Thanks to these measures, the replacement motor has received a Ex II 3D Ex tc IIIB T125°C Dc explosion protection marking and reliable delivers top performance in zone 22.

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#### **About Menzel Elektromotoren**

Based in Berlin, Menzel Elektromotoren GmbH has been manufacturing and distributing electric motors for more than 85 years. The medium-sized company specializes in the delivery of large electric motors, including special models, within the shortest possible time. The product range comprises high and low voltage motors, DC motors, transformers, and frequency inverters. Services include motor production and short-term adaptation of stocked motors to application-specific requirements. In order to ensure fast deliveries to the customer at all times, the company maintains a very extensive inventory including more than 20,000 motors with a maximum performance of up to 15,000 kW. Qualified engineering, experienced staff, and state-of-the-art production and testing facilities help Menzel provide excellent reliability. Menzel operates subsidiaries in the UK, France, Italy, and Sweden, and cooperates with numerous partners worldwide.

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