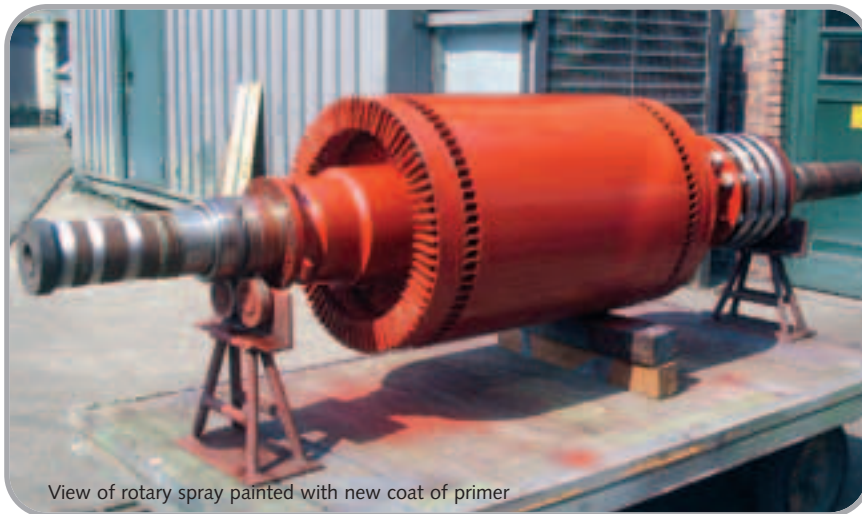


Raw mill breakdown

by **Menzel Elektromotoren,**
Germany

Picture a cement plant in the very heart of Africa. And conceive of this plant's raw mill running non-stop until one day production is brought to a ponderous standstill by a short-circuit in the winding of one of the mill motors. Now, can you imagine how long it would take to rewind this ancient motor in Central Africa? It doesn't take a genius to realise that even with the task completed, it would still be a very old motor indeed. But does this mark the end of the story for an industrial outpost? Far from it. There were not even major downtimes.



View of rotary spray painted with new coat of primer

Enter Menzel Elektromotoren, a Berlin-based supplier of electric motors of any type, any size, at any time. When the trans-continental emergency call came in, inquiring about the possibility of an express delivery, it didn't take the Menzel Team long to figure out that the entire operation of the cement plant depended on this one engine! It took even less time to verify that Menzel's vast stock of 20,000 motors included just the type of motor needed. Even better, it turned out that it would hardly take any time at all to customise this motor to meet the exact customer specifications.

Modifications

In order to save time not just in Berlin, however, but on location as well, some of the modifications were undertaken in Menzel's in-house shop, thus bringing the time required for frontline deployment at the cement plant down to a bare minimum:

For one thing, the positions of the terminal boxes were changed from the right-hand to the left-hand side of the motor, to ensure the unit could be

connected with existing cable hook-ups. Next, the diameter of the motorshaft was lathed to the dimensions of the customer's special couplings. New holes were drilled in the base to avoid the need for modifications to the existing frame at the cement plant or, in the worst case, the need for a new frame altogether.

Also, the sense of rotation of the motor was changed to clockwise rotation. This was done by replacing the inner and outer fans by fans for counter-clockwise rotation. Needless to say, this didn't pose much of a challenge for Menzel's warehouse, because cooling-fans for either sense, as well as bidirectional fans, are always in stock. What is more, any modification that may become necessary is swiftly handled right here in the company shops by highly skilled staff-standing by 24 hours if necessary!

Technical data

Motor:

German-made medium voltage slip ring motor
Power output: 1400kW
Stator voltage: 6.000 Volts Star
Frequency: 50Hz
Speed: 992rpm
Rotor data: 1476 Volts / 575A
Protection / enclosure: IP 54 / air-cooled
Mounting: B3
Weight: 7.500Kg
With thermistors in the stator winding
With double shaft-end

Liquid rotor starter:

German make
Power output: 2000kW
including pilot motor 400 Volts / 50Hz for automatic start

On site work

The larger problems had to be handled locally, as they involved—you guessed it—the African climate. The shop in Berlin had recalculated the heating conditions of the windings in such a way that the rated power output could be raised to 1400kW. Under lab conditions, the heating of the windings inside the stator and rotor always remained below the critical threshold of 120°C. Not a week had passed since the initial query when the motor was shipped out to the cement plant by air cargo. But once the motor was up and running on location, it wasn't long before a frantic e-mail reached the Menzel Technical Support Center in Berlin:

Modified motor, ready for packing and shipping



The monitored stator temperature had climbed into the critical range.

In fact, the measured temperature rose to the point that the motor was tripped and taken off the power supply. Obviously, this was not a problem that could be handled thousands of miles away in the shop in Berlin, nor could it be solved over the phone. And yet, it was nothing anyone at Menzel's lost any sleep over, though it did cost two engineers their weekend break when they were rushed off on a trouble-shooting detail to the hot spot in Central Africa on a Friday night.

No doubt, though, it was the right thing to do because on location the problem was quickly identified and taken care of. It was the power supply for the system responsible for monitoring the temperature that had caused a false alert.

The outcome

All is well that ends well, and the motor at issue has been running smoothly ever

since. Just about as smoothly, one might say, as the good relations this little drama established between Menzel Elektromotoren and the cement industry. Because this very cement plant went on to order a whole array of electric motors at Menzel's, such as high- and low voltage induction motors, as well as some large DC motors driving the main

kiln fan.

Did this turn of events really surprise anyone at headquarters? Not really, because it's just another chapter in the long success story of Menzel's, a company that has been active in the field since 1927. Plenty of time, in a word, to gather all the experience that money can buy, and to know without having to think about it that it will always be easier and ultimately faster, to say nothing of better quality, to take care of all necessary and technically feasible modifications of the

End shields with new holes in base and coat of anti-rust paint



respective motors in the in-house shop rather than on site at the cement plant, which would have involved production downtime.

Thus, you could say it was simply another day of business as usual for Menzel's Elektromotoren, which has been a family-owned business for three generations of engineers now, and which specialises in just this kind of thing – that is, the delivering, repairing, overhauling, installing and servicing of electric motors, generators and transformers with major output. You think Africa is a long way off for Menzel to be doing business? Think again. They'd shoot the moon for you if it needed to be rewired. █

Stator winding with fresh coat of primer, ready for mounting, and including rotor and endshields

