

Double-cage rotor asynchronous induction motors for cement-mill drive

For the raw and cement ball-mill twin drives slip-ring or other wound type rotor motors are used all over the world. Ganz – first in the world – successfully broke this tradition with double squirrel cage motors supplied to Duna-Dráva Cement Company at Beremend.

This new solution is significantly cheaper also from the investment side compared to the traditional solutions. On one hand the double-cage motor is substantially cheaper than the slip-ring motor – on the other hand the costly starting equipment and the adherent short-circuiting switch together with the controller are not required. The usage of our solution due to the low operational and maintenance costs further increase the adaptability of this new equipment.



One of the basic condition of the physical realization of the cement mill twin drives is the very careful design of the speed-torque curves. This solution guarantees safe starting of the mills, decreases the mechanical oscillation during starting and during operation, too. After the successful tests Beremend Cement Mills Co. decided a complete renewal-reengineering of their existing equipments and put into operation all of the 12 motors supplied by Ganz Transelektro at the beginning of 2002.

ADVANTAGES

- ♦ **Low investment and service costs compared to slip-ring induction motors**
- ♦ **Simple, robust rotor construction**
- ♦ **Long life expectancy**
- ♦ **Minimum maintenance and service demand and supervising characteristic**
- ♦ **Advantageous starting conditions**
- ♦ **Adequate for the driver of other similar equipment**



Construction

The three phase double-cage rotor asynchronous motor is adequate for direct starting. It has a completely closed stator with mounted air-to-air heat exchanger. The roller bearings are provided with automatic greasing. There are intern built-in SKF Vibrational Sensors. The stator winding has F thermal class VPI system insulation. There are Pt 100 winding thermometers provided.

General application range

- ♦ Power: 500 kW–2500 kW
- ♦ Frequency: 50–60 Hz
- ♦ Speed: 750–1800 rpm
- ♦ Protection: IP 54
- ♦ Cooling: IC 611 or other



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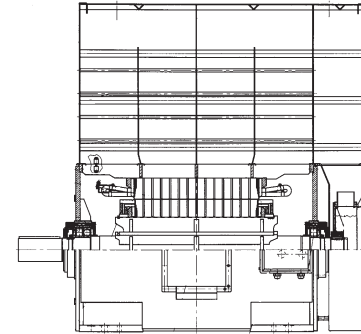
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Main constructional features of the first reference

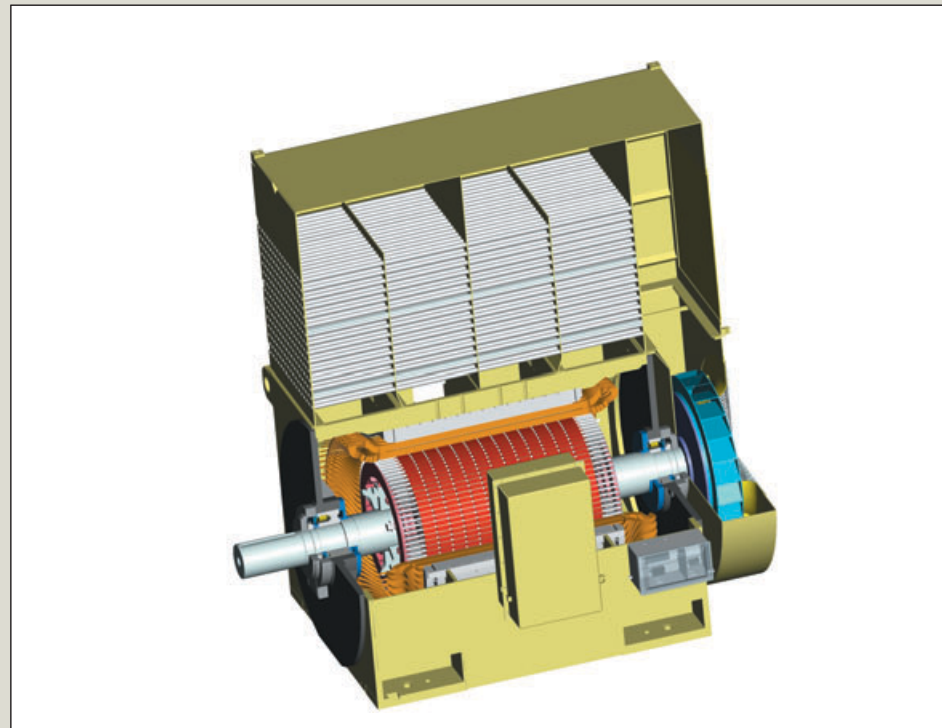
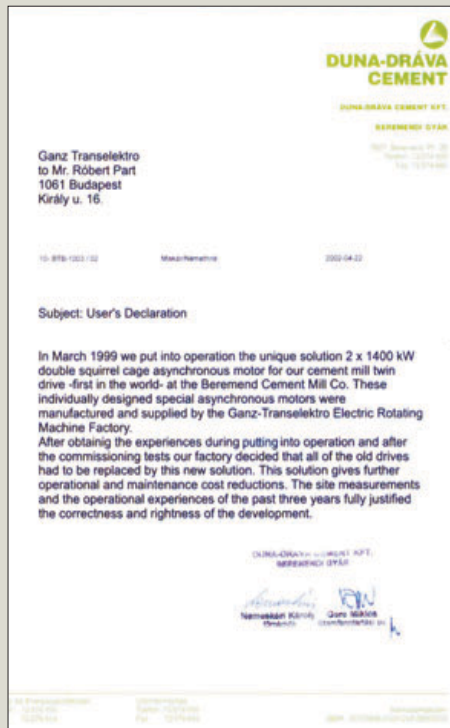
- Type: FTC 560K6
- Power: 1400 kW
- Voltage: 6300 V
- Speed: 990 rpm
- Frequency: 50 Hz
- Nominal current (In): 153 A
- Efficiency: 96.5%
- Power factor: 0.87
- Torque (Mn): 13500 Nm
- Breakdown torque: 2.1 x Mn
- Starting torque: 1.1 x Mn
- Starting current: 4.9 x Mn
- Protection: IP 54
- Cooling: IC 611
- Mass: 7500 kg



SECTIONAL DRAWING



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