Customer reference case

Elevators and escalators

Gearless direct drive elevators

SKF Explorer sealed spherical roller bearings

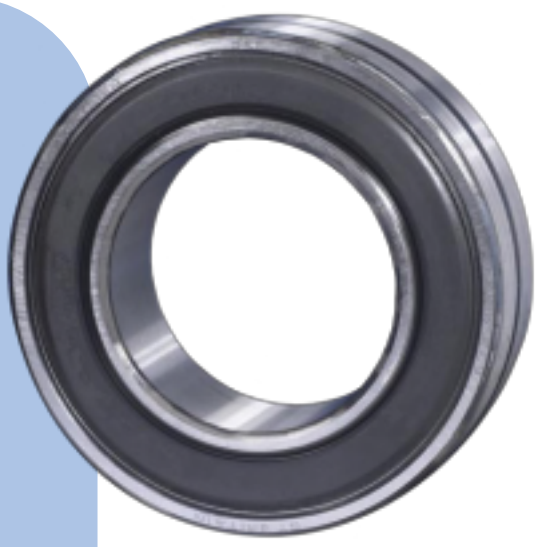
SKF Explorer sealed spherical roller bearings enable new generation of gearless, direct drive elevators

The recent rapid pace of high rise construction in China has driven the country's leading elevator manufacturer, Shanghai Mitsubishi Elevators, to explore every way to provide faster, quieter and more space-efficient designs, without compromising passenger comfort and safety.

Switching from a geared motor to a direct drive, gearless design would enable higher speed and greater energy efficiency in a more compact arrangement. But the gearless design also created a challenge: with no gearbox and no gear oil, the open bearings supporting the rotating shaft would have to be regularly lubricated – a difficult and costly regimen that could potentially jeopardize brake function due to grease leakage.

The solution was switching to SKF Explorer sealed spherical roller bearings.

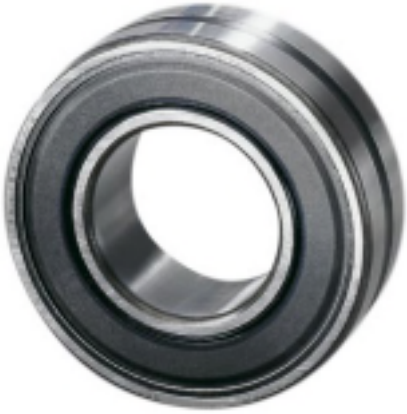
Designed to accommodate very heavy radial and heavy axial loads in applications where misalignment or shaft deflection can occur, these virtually maintenance-free bearings can have a service life as long as that of the drive system itself, 20 years or more, depending on operating conditions. Made of an extremely clean, reduced-oxygen level steel that provides greater

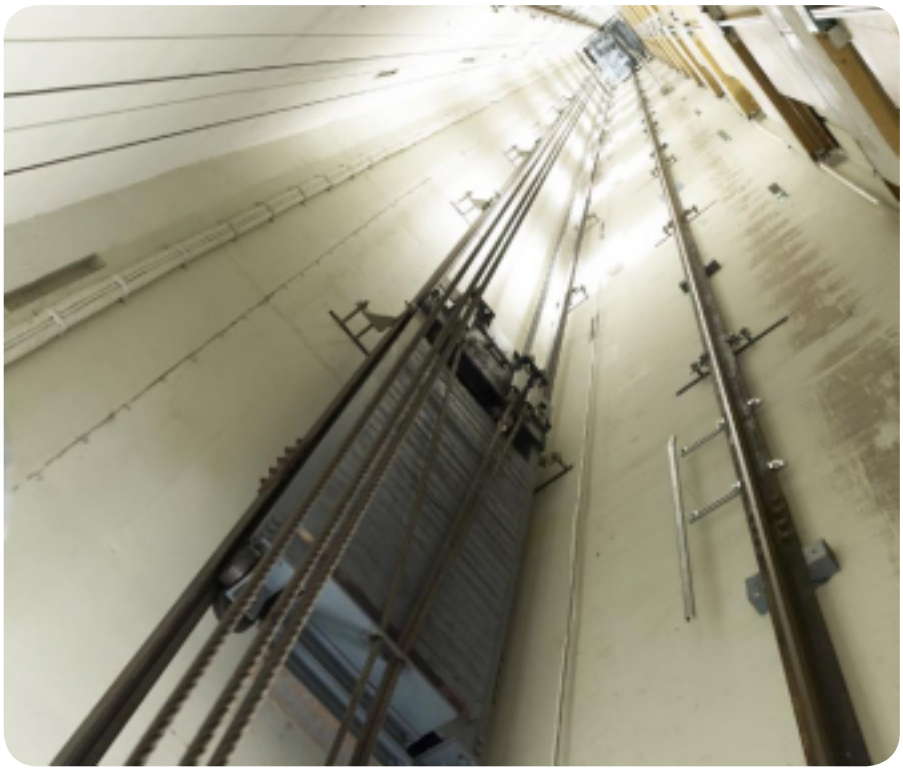


strength, SKF Explorer spherical roller bearings even exceeded the customer's requirements for heavy loads, low noise, effective lubrication, and protection against solid contaminants and moisture.

Switching to a gearless motor requires stronger bearings. SKF Explorer sealed spherical roller bearings are a good choice which also yield a number of other important benefits. In addition to downsizing of the total system, reductions in total friction, energy consumption and grease usage made the application more environmentally friendly. And, finally, virtually maintenance-free bearings cut maintenance costs and eliminated the need for workers to access sheaves in difficult positions.

After 3 months of endurance and function testing, the manufacturer was so impressed by the performance of the sealed spherical roller bearing that they switched their entire production to this type of bearing and entered into deeper development talks with SKF. As a consequence, SKF and Shanghai Mitsubishi are partnering on the shaft system and bearing requirements for the development of the company's newest elevator design. With a descending speed of 6 metres per second, it will be the fastest elevator in China.





SKF Explorer
sealed spherical roller bearings

- improved raceway surface finish increases lubricant effectiveness for a smoother, cooler running bearing
- proven double lip seals provide excellent protection
- higher surface hardness and dimensional stability at high temperatures
- factory filled, high quality grease
- self-guiding rollers enable lower operating temperature and improved operating conditions for the lubricant
- increased reliability and service life

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