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SCHAEFFLER TECHNOLOGIES GMBH & CO. KG, SCHWEINFURT

London Eye Celebrates Ten Years with Spherical Roller Bearings and Spherical Plain Bearings from FAG
Bearings keep the observation wheel turning

The Millennium Wheel has been turning continuously, day after day, for ten years now on the bank of the Thames in London and has become one of the largest visitor attractions and a modern landmark of the British capital. At the center of the observation wheel: Rolling bearings from FAG which ensure the wheel rotates reliably. The observation wheel was originally planned to be just a temporary attraction for several years. But over 36 million passengers have made the wheel an unexpected success and keep it going beyond its first decade.

Ever since the FAG hub bearing supports for the London Eye were supplied at the turn of the millennium 1999/2000, the Schaeffler Group Industrial has been regarded as a preferred development partner and supplier for the particular demands which such projects place on engineers and rolling bearings. The London observation wheel, which was constructed with approximately 1,500 tons of steel, rotates with the help of two double row, radial FAG spherical roller bearings, which are fitted as a locating and non-locating bearing combination in the hub of the observation wheel. The locating bearing, with an outside diameter of 2.66 meters, weighs 6.3 tons and is firmly mounted on the shaft. The non-locating bearing, with an outside diameter of 2.62 meters and a weight of 5.2 tons, can move back and forth on the shaft in order to compensate the thermal expansion.

The spherical roller bearings have a rating life of more than 50 years. Experienced specialists from the service subsidiary FAG Industrial Services (F'IS) conduct regular inspections to ensure defect-free and reliable function of the bearings over this period. Endoscopic inspections of the raceways and rolling elements enable any damage to be detected early on. Lubricant samples are taken on a regular basis and inspected for particles and abrasion. If it is necessary to dismantle the bearings at some point in time, however, Schaeffler's engineers have come up with a clever solution: Because the non-locating bearing has a larger bore (2.1 meters) than the locating bearing (2.04 meters), it can be "pulled" over the locating bearing seat. Both bearings can be dismantled from one side. Dismantling would be carried out on the river side because the observation wheel only has a support on the bank side. The easy access saves time and costs.

In addition to the central hub bearing supports, large spherical plain bearings of the Schaeffler ELGES brand hold the London Eye in an upright position. The large spherical plain bearings enabled the wheel to be moved from its horizontal mounting position across the Thames into its final vertical position during

installation. Since then the bearings have had to compensate, for example, micro movements caused by the wind, which would otherwise act on the comparatively rigid steel construction.

The 135-meter high Millennium Wheel was the largest of its kind for a long time. However, larger projects, for example, in Beijing are already being constructed. Schaeffler Group Industrial has already delivered the spherical roller bearings for the hubs for the “Beijing Wheel”. With a total height of 208 meters, the bearings are also moving into a new dimension: Both FAG spherical roller bearings have an outside diameter of 3.2 meters, a bore of 2.6 meters and a ring width of 630 millimeters. Each bearing has a total weight of over eleven tons. A spherical roller bearing in these dimensions and with these requirements had not been produced before.

The Industrial Division of the Schaeffler Group supplies rolling bearing and plain bearing solutions, and linear and direct drive technology under the INA and FAG brands for around 60 different industrial sectors via its worldwide organization with market proximity and application support service. The range comprises more than 225,000 products from miniature bearings only a few millimeters wide, e.g. for dental drills, to large bearings with an outside diameter of many meters, e.g. for wind turbines.

The Schaeffler Group and its 61,000 employees at more than 180 locations worldwide generates group sales of 7.3 billion euros (FY 2009) and ranks amongst the leading rolling bearing manufacturers and suppliers to the automotive industry worldwide.

FAG Industrial Services GmbH (F'IS) (Herzogenrath/Aachen) offers services, service products and training that are independent of manufacturer for all aspects of maintenance. It helps it's customers save on maintenance costs, optimize plant availability and avoid unforeseen machine downtime. F'IS is responsible for the worldwide service business of Schaeffler Group Industrial for the brands INA and FAG. The Schaeffler Group, with its brands INA, LuK and FAG, and approximately 61,000 employees at 180 locations worldwide generated sales of 7.3 billion euros in 2009.

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The Millennium Wheel in London has been turning for ten years. At the center of the observation wheel: Rolling bearings from Schaeffler Group Industrial.

(Photos: Schaeffler Technologies)

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Assembly of the spherical roller bearings for the Millennium Wheel in London.

(Photos: Schaeffler Technologies)

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World record: Both FAG spherical roller bearings for the “Beijing Wheel” have an outside diameter of 3.2 meters, a bore of 2.6 meters and a ring width of 630 millimeters.

(Photos: Schaeffler Technologies)

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