

Fairground Rides:

total



Drive and control system

THRILL



By Bosch Rexroth Corporation

Adrenaline Rush – The El Volador leans by up to 60 degrees while the gondola continues to spin.



“El Volador,”

a thrill ride at the Bellewaerde Theme Park in Belgium, consists of a narrow tower with a horizontally spinning gondola, which holds up to 40 passengers and twists around the tower right up to the top at around 20-m high. Then, the entire tower can be tipped by more than 60 degrees, while the gondola continues to spin around its own axle. Throughout all this, the big bird's head at the top of the tower always points down towards the ground, as if it is trying to peck at the surrounding audience. Finally, the giant bird re-erects itself and tips to the other side, like a colossal pendulum.

With movements like these, this thrill ride poses an enormous challenge with regard to control and drive technology. During the design and construction, HUSS Park Attractions GmbH commissioned the Rexroth Dutch subsidiary in Boxtel with the delivery of the entire hydraulic and electric drive and control technology. And this paid off during development. The design was revised to integrate two opposed drive cylinders. For the passengers, this means being able to safely enjoy an exceptional experience.

“The feeling you get when the gondola turns and the pole leans is tremendous. It is as though you're flying,” reports Marc Mulders, project manager at Rexroth in Boxtel.

One-Stop Solution

The ongoing project design and construction combined the know-how of various business units at Boxtel. “We were able to gear the entire drive and control system to the stringent TÜV safety requirements and construct and install it accordingly,” says Mulders. “This saved our customer a lot of work.”

Further rides have already been erected in France, China, Denmark and the USA, with a sixth ride currently in production.

Technical Components/ Features:

- Ceramax coated custom designed hydraulic actuators
- Unique hydraulic interconnection of the two hydraulic actuators:
 - To start the tumbling of the tower, hydraulic oil supply occurs at the bottom side of the actuators, providing maximum force.
 - Once the tower tumbles at +/- 60 degrees angles, the oil supply occurs at the rod side because less force is needed to maintain the tumbling of the Topple Tower. The main advantage of this feature is that the tumbling requires significantly less oil flow and thus power.

For more information, visit www.boschrexroth-us.com.

HISTORICAL SIGNIFICANCE: EL VOLADOR

Cuetzalan is lying sleepily in the early morning sun. Then, a cockerel crows somewhere. Shutters are opened, music can be heard and soon after, the whole village is up and about. In Cuetzalan, the “magical village” northeast of the Mexican town of Puebla, they are celebrating the region's most important festival today: the election of the beauty queen “del Huipil.” But beauty alone won't win the title. Using a hand loom, the young women have to weave their own, very special, Huipil blouses made from the finest cotton; they must also be able to speak the Indian language of Nahuatl. When, at the end of the day, the prettiest and most skilful girl has been named the queen, the men dare to do something very special. In honor of the new queen, they brave the “Danza de los Voladores”, the dance of the flying birdmen. During this, the men are tied by rope upside down to a high pole, hanging from their feet. Then the pole is turned – faster and faster, until at last, the men are whirling through the air horizontally.

Not least because of attractions like this, has the festival become a focal point amongst tourists. More and more travelers are enthralled by the picturesque village hidden by jungle, and the magnificent colors of the costumes. And the rituals and dances inspire some to extraordinary ideas--like, for example, the engineers of ride manufacturer HUSS Park Attractions GmbH from Bremen in Northern Germany. In honor of the brave men from the magical village, they called their newest ride “El Volador.”