

Ameridrives

Bauer Gear Motor

Bibby Turboflex

Boston Gear

Delroyd Worm Gear

Formsprag Clutch

Guardian Couplings

Huco

Industrial Clutch

Inertia Dynamics

Kilian

Lamiflex Couplings

Marland Clutch

Matrix

Nuttall Gear

Stieber Clutch

Stromag

Svendborg Brakes

TB Wood's

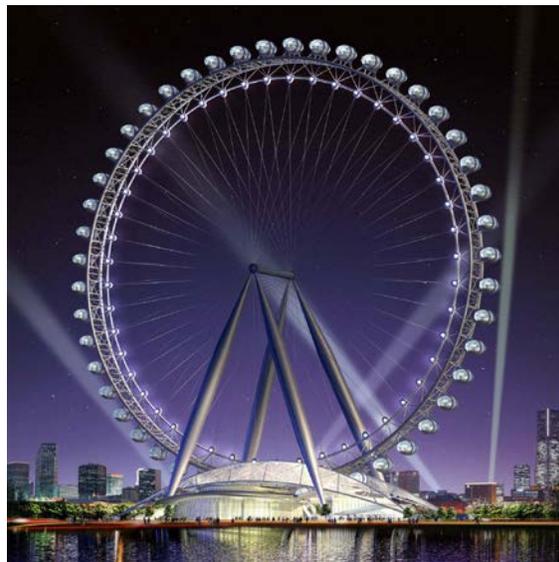
Twiflex Limited

Warner Electric

Warner Linear

Wichita Clutch

Clutches and actuators provide a smooth ride on China's Great Wheel



As seen in
Design World
June, 2009



 **Warner Linear**[®]
Altra Industrial Motion

 **Warner Electric**[®]
Altra Industrial Motion

Clutches and actuators provide a smooth ride on China's Great Wheel

In Beijing, China, plans are underway to build the Great Wheel of China, a giant ferris wheel which will hold the record as the world's highest observation wheel, with views reaching the famous Great Wall of China.

Warner Electric, part of worldwide power transmission group Altra Industrial Motion, has supplied the wheel manufacturer, SIGMA, with linear actuators to open the doors and electromagnetic clutches to control the yaw of each of the 48 observation carriages. Warner Electric's expertise in diverse power transmission applications has proved vital to the operation and comfort of the wheel.

When the world's tallest ferris wheel is completed in late 2009, it will stand 680 feet high (208m), which is over 130 feet (40m) taller than the current highest wheel in Singapore. The wheel will have 48 air conditioned carriages which will each be able to hold 40 passengers, giving it a total capacity of 1,920 passengers. The wheel will be so high that on clear days passengers will have a view stretching all the way to the Great Wall of China.

The wheel is predicted to make 750,000 rotations over a period of 50 years so only products that are designed to deliver extended service life were considered, according to the manufacturer.

Linear actuators for each of the 48 carriages will be used as a secondary lock to prevent the door from opening during rotation. The actuator was designed in accordance to customer specifications which included an adjustable end limit switch, end stroke signalling, specific stud, nut and washer arrangements, a manual release lever and extruded aluminium tube bodies to avoid corrosion and reduce weight.

Pierre Lootvoet of Warner Electric says: "We are very proud that our products are being used for such an exciting project. The linear actuators we have provided will help to ensure the enjoyment of everyone who rides on the wheel."

Warner Electric designs and manufactures a full line of maintenance-free linear actuators for applications ranging from light to rugged duty. Each actuator has an ingress protection rating of IP65, meaning they can be subjected to low pressure jets of water from all directions. All products can be 'mixed and matched' to accommodate custom orders quickly and effectively.

Each cabin of the Great Wheel of China has also been equipped with a Warner Electric electromagnetic tooth clutch to provide stability to the carriages. The clutches will prevent the carriages from swaying in the wind which is necessary to prevent passengers from suffering from motion sickness throughout the 20 minute ride. The clutches keep each carriage axis vertical as the wheel rotates. If the carriages were left to hang freely, they could sway too much for comfort in the strong winds that are present at such a height.



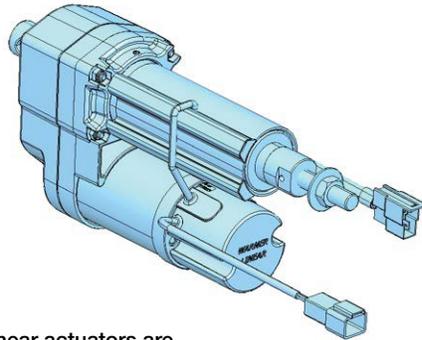
There are 48 underhung cabins on the world's tallest Ferris wheel in Beijing, China. Each cabin is equipped with a Warner Electric linear actuator and electromagnetic tooth clutch.

A tooth clutch provides higher torque in limited areas which means that the relatively small clutches are able to stabilize the cabins, according to Lootvoet. Each clutch has a flexible coupling which compensates for misalignments and allows for easy mounting. In the event of the transmission locking on the wheel, the clutch will be disengaged to leave the cabin free. A hand release lever also allows for manual disengagement.

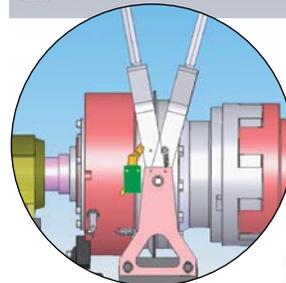
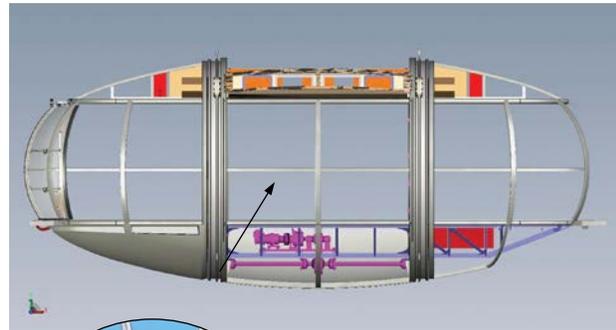
Warner Electric has been a leader in the field of power transmission for over 70 years. Warner Electric's industrial electromagnetic clutches and brake products represent the industry standard, with the broadest range of packaged and custom designed products available. Its industrial range of clutches and brakes is further complemented by a complete offering of tension control systems, sensors, switches, and linear actuators and controls.

Warner Electric, headquartered in South Beloit, IL, is part of Altra Industrial Motion, Braintree, MA, a leading multi-national designer, producer and marketer of a wide range of mechanical power transmission products. Altra brings together 19 strong brands covering over 40 product lines. With production facilities in nine countries and sales coverage in over 70 countries, Altra provides all its branded products with worldwide support.

Altra's other leading brands include, Matrix International, Wichita Clutch, Stieber Clutch, Twiflex Limited, Bibby Transmissions, Huco Dynatork, TB Wood's, Formsprag Clutch, Ameridrives Couplings, Industrial Clutch, Boston Gear, Marland Clutch, Nuttall Gear, Delroyd Worm Gear, Inertia Dynamics, Warner Linear, Kilian Manufacturing and Ameridrives Power Transmission.



Linear actuators are used as a secondary lock to prevent the door from opening during rotation.



In case of any unexpected locking of the transmission, the clutch is automatically disengaged to leave the cabin free with axis vertical due to gravitation.





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About Altra Industrial Motion

Altra is a leading global designer and manufacturer of quality power transmission and motion control products utilized on a wide variety of industrial drivetrain applications. Altra clutches and brakes, couplings, gearing and PT component product lines are marketed under the industries most well known manufacturing brands. Each brand is committed to the guiding principles of operational excellence, continuous improvement and customer satisfaction. Highly-engineered Altra solutions are sold in over 70 countries and utilized in a variety of major industrial markets, including food processing, material handling, packaging machinery, mining, energy, automotive, primary metals, turf and garden and many others.

Altra's leading brands include Ameridrives, Bauer Gear Motor, Bibby Turboflex, Boston Gear, Delroyd Worm Gear, Formsprag Clutch, Guardian Couplings, Huco, Industrial Clutch, Inertia Dynamics, Kilian, Lamiflex Couplings, Marland Clutch, Matrix, Nuttall Gear, Stieber Clutch, Stromag, Svendborg Brakes, TB Wood's, Twiflex, Warner Electric, Warner Linear and Wichita Clutch.