

# case study



Omaha's Henry Doorly Zoo opened its Skyfari ride this Spring. The Skyfari transports guests over various animal exhibits (courtesy of Omaha's Henry Doorly Zoo).

# Power Transmission Vs. Wild

GEAR REDUCER PROVIDES COMPACT SIZE & MOUNTING OPTIONS FOR UNIQUE ZOO APPLICATION

Matthew Jaster, Associate Editor

**T**ypically, zoo safari rides consist of cramped trams that take guests five miles-per-hour past various exhibits. You might catch a bear sleeping, hear scripted, narrated fun facts or be somewhat entertained by eccentric tour guides, but there's never much to look at except concession stands or souvenir shops.

Omaha's Henry Doorly Zoo recently took the safari ride in a slightly different direction by putting patrons 40 feet above the various animal exhibits. The Skyfari, an open air chairlift, provides unique perspectives of the cheetahs, elephants, rhinos, monkeys and giraffes on-hand at the zoo.

While not the first of its kind, the Skyfari is an amusement park/zoo attraction that carries up to 800 riders an hour in each direction, moving at 200 feet per minute. Guests are treated to spectacular views of gardens, lagoons and animal exhibits from a point of view they won't get from a safari tram ride.

The Skyfari is the brainchild of SkyTrans Manufacturing LLC, located in Contoocook, NH. For years, SkyTrans has taken new and refurbished aerial tramways and converted them into rides at amusement parks, zoos and other attractions nationwide.

In order to make the safest and most cost effective system for the Skyfari, SkyTrans enlisted the help of Lane Conveyors and Drives, in Brewer, ME, to help choose the planetary gear reducer used for turning the large cable and sheave that move the chairs on the ride.

Lane, a material handling and power transmission supplier, had worked with SkyTrans on previous projects and had

a pretty good idea what the company was looking for.

"The customer came to us looking for a right angle reducer, and we originally offered a couple of different options," says Ray Vigue, sales representative at Lane. "The Bonfiglioli reducer was chosen due to its compact size, high torque rating and competitive cost."

Bonfiglioli's 50-plus years of experience with gearboxes and electronic drives in industries from renewable energy and industrial automation to construction and heavy equipment projects helped in the initial decision-making process. Here was a company with a diverse portfolio of power and control solutions that could quickly meet the requirements SkyTrans was looking for.

Vigue says the fact that Bonfiglioli was able to provide a reducer with higher horsepower and torque rating in the same package size helped the cause.

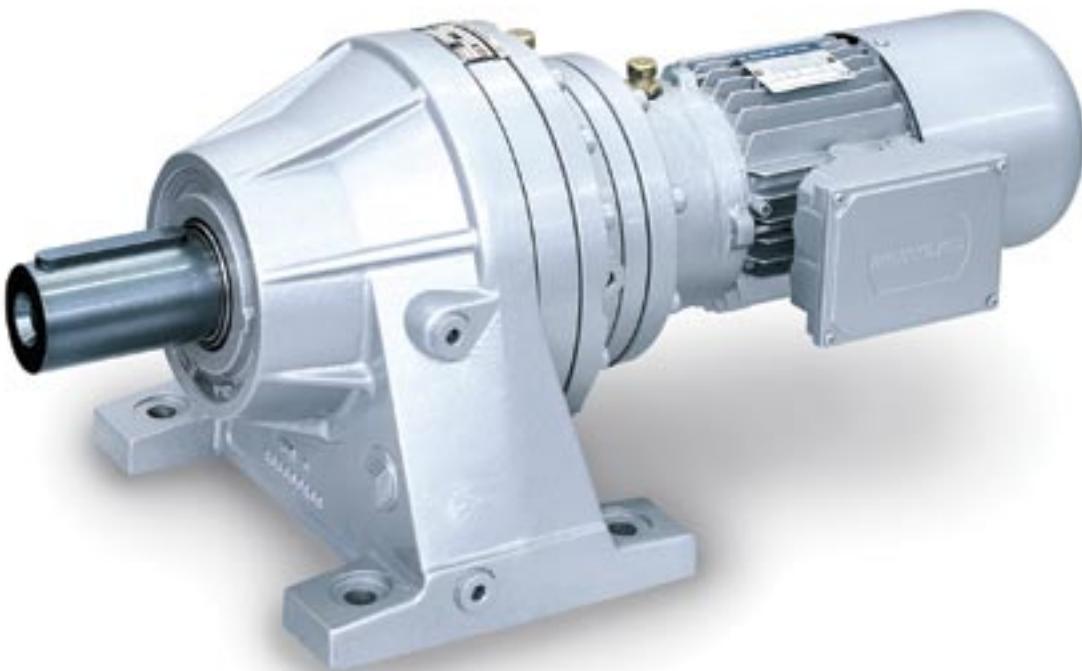
"For this installation, mounting flexibility and torque density were the most important considerations. The compact size and the availability of a right angle input stage gave the customer more mounting options."

The key to the project revolved around reliability. What components would best fit an application where safety, service and flexibility were considered pivotal to the final product? It's not every day engineers have to sort out how guests are going to safely move 40 feet over animal exhibits.

"We needed to put a few things together for the client to ensure that the machine wouldn't die in the middle of

**continued**

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**Lane Conveyors and Drives suggested Bonfiglioli's gear reducer for the Skyfari project due to its compact size and competitive cost (courtesy of Bonfiglioli).**

a Sunday afternoon during open hours," says Jeff Bower, regional sales manager at Bonfiglioli. "All the drive components were sized with a generous service factor. How much horsepower and torque would it take to move the gondolas across the park? What do I need the gearbox to do? What had to be done in general so that the equipment did not fail?"

Answering these questions helped Bonfiglioli provide a gear reducer that could attain green and energy efficient elements simply by sizing the unit properly and measuring the service factor.

The company also took some direction from a retrofit project for a paper milling application where they installed a similar 300 Series planetary reducer.

"The benefits of that application were enormous since we were working with very clear cut space restrictions," Bower says. "Historically, that unit would only last about a year before it needed to be replaced. When we decided to come in with a smaller reducer, it gave us more flexibility and longer life."

On the Skyfari project, safely transporting guests across the zoo became the top priority. Along with the service factor, SkyTrans installed a hydraulic braking system that holds the wheel in place. This failsafe device will immediately stop the attraction if something happens to the drive system.

Once these challenges were met and the reducer was installed, Skyfari was up and running. In April 2009, Omaha's Henry Doorly Zoo opened the Skyfari to the general public, giving guests an entirely new experience of viewing the animals.

This 20-minute air ride across the zoo grounds covers more than 130 acres, much to the delight of the smallest

guests. From this view, there are plenty of different things to look at thanks to the custom solutions provided by SkyTrans, Bonfiglioli and Lane Conveyors and Drives.

Vigue has no trouble recommending Bonfiglioli products for similar applications.

"The project went well and SkyTrans will continue to use Bonfiglioli reducers on future projects." 

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