DRIVE SYSTEMS
FOR CLEANING GONDOLAS

CASE STUDY: GONDOLAS IN DESIGN

NORD DRIVESYSTEMS

Lifting and turning, to reach every corner.

Positioning, gentle and precise.

Safety, reliable and durable.

NORD geared motors.

NORD frequency inverters.

Geared motors and frequency inverters featuring precise positioning capabilities are used to lift and turn a gondola designed for the **"New York by Gehry"** *skyscraper. It enables maintenance and cleaning staff to reach every nook and cranny of the complex facade.*

CONSTRUCTION INDUSTRY
Facade cleaning gondola

GEARED MOTORS
Helical inline, helical bevel and helical shaft geared motors

FREQUENCY INVERTERS
SK 500E

PROJECT CHALLENGE

Since 2011, a new skyscraper stands 265 m tall on the island of Manhattan, not far from the Brooklyn Bridge. Now marketed as "New York by Gehry," in a reference to its renowned architect, this high-rise is currently one of the tallest residential towers in the world. The structure's facade is covered in irregular waves of stainless steel, which provide for a spectacular appearance due to ever-changing light reflections. At the same time, however, this outer skin presented a major challenge for the development of a suitable cleaning and maintenance gondola that can actually access every spot along the undulating surface.

Special gondola for an extravagant facade. – Góndolas in Design, S.L., worked with NORD DRIVESYSTEMS to develop a suitable customized solution. Given that it is a unique custom system, ensuring its unfailing operation for many years became all the more important. Due to the extensive surface area, the cleaning gondola is used almost all the time, except in extreme weather.

Gentle, precise, reliable. – Powerful geared motors and frequency inverters were required for the drive solution: the gondola has to be lifted, lowered, and rotated, the weight of a telescopic arm must be adequately compensated, and precise control over all movements must be ensured at all times. Excellent product and service quality and the availability of worldwide technical support for the drives were equally important, since they were crucial for the overall reliability of the gondola installation as a whole.

FOCUS ON THE CUSTOMER

Góndolas in Design, S.L., develops and manufactures customized maintenance and cleaning systems for building facades. GinD equipment meeting the highest standards of quality and safety is used in many countries across North America, Europe, Africa, the Middle East, and Asia. The Madrid-based company is known for various especially innovative gondola designs created to meet distinctive challenges presented by buildings with extraordinary architectural features.

"NORD services are available around the clock. All the challenges which have arisen during the course of the project were successfully resolved by NORD."

Hugo Donoso, Managing Director at GinD

APPLICATION SOLUTION

The gondola solution for the skyscraper consists of a telescopic arm, a special guiding system along the facade, and a multi-telescopic pod for accessing the inward-curving surfaces of the building. NORD drive technology lifts and rotates the pod, counterbalances its weight, and drives the telescopic unit.

Gently moving up and down. – For lifting, NORD supplied a helical bevel gearbox with a brake motor that turns the gondola's cable drum. An SK 500E frequency inverter provides for gentle starts and stops of the gondola. It also ensures that the gondola remains properly positioned relative to the building's facade when the telescope arm is in use.

Keeping the balance. – A counterbalance mechanism is fundamentally important for the system – without it, the entire installation would have to be built much stronger, heavier, and more expensive. The counterweight is moved forwards and backwards by a helical bevel geared motor whenever the telescopic arm is extended and retracted. Another SK 500E frequency inverter employs acceleration and deceleration ramps to move the mass of the counterweight.

Accessing all sides. – Finally, two helical inline geared motors engage a gear ring in order to turn the whole machine, so that the gondola can be used on all sides and surface areas of the building. In this segment of the installation, another SK 500E frequency inverter also serves to support the soft start and stop movements of the gondola, and provides for variable rotation speeds.

Safe at any story. – NORD drive technology gently moves the gondola and ensures precise positioning.

FOCUS ON THE PROJECT

NORD drive technology manages the lifting, turning, and exact positioning of the gondola system used to clean the facade of the Gehry skyscraper in New York. Moreover, the drive solution provides

- 24 % higher radial stress tolerance for the geared motors compared to major competing products, and
- 25 % higher typical overload capacity for the frequency inverters compared to inverters from most other manufacturers.

OTHER NORD APPLICATIONS YOU MAY FIND INTERESTING INCLUDE:

- Passenger and freight elevators
- Hoist drives for gantry cranes
- More: www.nord.com/references

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CS0003 Mat.-Nr. 6066002 / 4014