

DRIVE SYSTEMS FOR CONSTRUCTION HOISTS

CASE STUDY: STROS



Durable and Reliable
No matter the weather



Fail Safe and Fast
Always ready and available



Multi-ton Loads
Precisely positioned

Swift and Smooth
Comfortable Transportation



NORD Helical-Bevel Gearmotors
Powerful right-angle units



Several skyscrapers in the “Moscow City” construction project were built using hoist solutions from Czech manufacturer STROS. On structures rising taller than 300 m, strong NORD drives ensured that the hoist cages moved safely up and down in any weather.

PROJECT CHALLENGE



Building Construction
Personnel and
material hoists



Geared Motors
Helical-bevel
gear units



AC Vector Drives
Cabinet mounted
frequency inverters

The “Moscow City” business complex adds a number of high-rise landmarks to the Russian capital’s skyline. For instance, the highly boasted project includes the Mercury City Tower, whose 340 meter height currently makes it Europe’s tallest building. Such verticle structures require hoists that are capable of traveling quickly, even in adverse conditions with wind speeds that reach up to 20 meters a second.

Sky express – STROS Sedličanské Strojírny, a. s., was commissioned to supply tower climbing equipment for eight new buildings in the “Moscow City” complex. The Czech company manufactures hoists systems that currently feature lifting capacities of up to 3,200 kg and speeds of up to 100 m/min. Such systems are fitted with a unique safety device – an original STROS development. This mechanism is triggered whenever the nominal, safe lowering speed is breached: a

gear on the output shaft engages a pinion, which then gradually stops the hoist cage. However, in order to avoid the need for such emergencies altogether, a sophisticated drive solution engineered by NORD ensures highly reliable operation.

Double back-up – If a hoist is out of order, an entire construction site may come to a standstill. Hence, hoist drive solutions must take every available measure in order to assure maximum reliability. For the sake of preventing costly downtimes, NORD DRIVESYSTEMS’ concept for STROS hoisting equipment is based on up to three autonomous gear units, complemented by an intelligent AC vector drive that provides for incredibly smooth movements.

FOCUS ON THE CUSTOMER



STROS Sedličanské Strojírny, a. s., is the largest manufacturer of construction hoists in the Czech Republic. The company produces three new systems per week for customers around the world, and also provides maintenance services on request. The STROS portfolio includes personnel and material hoists, special and permanent elevators, suspended platforms, work platforms, and custom-engineered projects. The first systems in the tried and tested NOV hoist series originally went into production in the 1960s.





"Whatever new challenges we meet, NORD provides consulting & tests in order to develop a solution. These units are tailored exactly to our needs."

ZDENEK COUBAL, STROS CHAIRMAN

APPLICATION SOLUTION

The drive system for STROS construction hoists in "Moscow City" comprises three helical-bevel geared motors with external braking resistors. The motors are equipped with electromagnetic disc brakes that can be manually released. NORD's full-scale custom solution also features an AC drive with hoist functionality that controls all three motors. Mounted inside of a control cabinet, this intelligent controller enables soft starts and stops and ensures a high leveling precision.

Long-standing, cooperation – NORD first devised a reliable custom drive system for STROS in 1997, and has been the hoist manufacturer's sole source of drive solutions for the past 15 years. NORD has also supported STROS in their recent foray into new market segments: other than construction hoists, the Czech company now manufactures hoists for permanent use on buildings, including power plant chimneys. All of these new systems are equipped with NORD drives as well.

Application-specific engineering –

Instead of standard gear units, STROS is supplied with customized products that are assembled exactly as requested. Depending on the project, some of these gears are fitted with reinforced bearings, or use special gear case materials, or are ATEX and/or NEC-compliant. Cabinet-mounted AC vector drives are available in different performance classes and with varied levels of functionality. In addition to features like emergency evacuations, optional functions include positioning and safety features like STO and SS1 for safety requirements up to SIL 3.



Strong and safe. –
Electronically controlled gearmotors gently move several ton loads.

FOCUS ON THE PROJECT

In Europe's largest metropolis, STROS construction hoists helped erect eight high-rise buildings for the "Moscow City" project, including the Mercury City Tower that now stands some 340 m tall. A NORD solution featuring three electronically controlled helical-bevel gear units served as the drive system for this skyscraper's hoist featuring:

- a lifting height of 350 m
- a load capacity of 2 tons
- a speed rating of 70 m/min





**MORE REFERENCES AND
CASE STUDIES MAY BE FOUND AT :**

▪ www.nord.com/references



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Global Vision, Local Support

NORD makes its wide product range easily available through a global network that includes representation in over 60 countries. By providing all of our customers with prompt delivery, and expert support services, we are firmly committed to exceeding customer expectations and being responsive to the ideas and specifications of every customer, anywhere in the world.