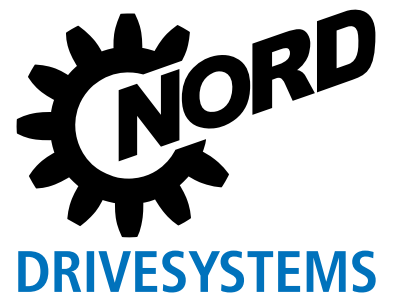


DRIVE SYSTEMS FOR TUNNEL CONVEYORS

CASE STUDY: H+E LOGISTIK



Tunnel Construction
The “London Crossrail” Project

The Challenge
Material Transport

Reliable & Low Maintenance
Conveyor Drives you can Trust

Quick Delivery
Global Locations to
Ensure Short Lead Times

NORD Gear Drives
Right-Angle Helical-Bevel Design



New tunnels below the city of London are now under construction for the “London Crossrail” urban transportation system. A drive solution to remove the thick, clay soil from the tunnel is challenging for a customized conveyor system.



Tunnel Construction Conveyor Systems



Gear Drives Helical-Bevel and Helical-Worm Gear Drives

PROJECT CHALLENGE

Spanning more than 62 miles from east to west, a new rapid transit connection called the “London Crossrail” will soon be added to London’s public transportation network. A number of new tunnels are being bored through the heart of the city. H+E Logistik was employed to devise a special conveyor solution for removing excavated soil from the tunnels. The customized system was fitted with gear drives that were provided by NORD DRIVESYSTEMS.

A Demanding Transportation Task

Though “London clay” is easy enough to drill through, the sticky texture of the soil, along with the dispersing agents added by the boring machines, makes removing this material from the tunnel very challenging. If standard belts had been used, the soft

clay mixture would stick to moving parts on the conveyor system prohibiting operation. H+E Logistik solved this problem by applying specialized plastic coatings to the belts and developing a dedicated wiper system that mechanically prevents material from clinging to the exposed components.

Reliable and Reusable

In order to ensure minimal interruptions in the operation, the system also required a reliable drive solution. Dependable performance with high flexibility were key requirements, due to the potential for reuse of the systems after the completion of the London project. H+E decided to consult with NORD DRIVESYSTEMS since numerous NORD drives had proven themselves in various projects over the past ten years.

FOCUS ON THE CUSTOMER



H+E Logistik GmbH is a manufacturer of tunnel conveyor belt systems, back-up conveyors for tunnel boring machines, and conveying systems for the mining and construction industry as well as the ports and harbor sector. The company develops custom solutions that have been adapted to unique conditions and special requirements of the application. H+E is a subsidiary of the world’s leading developer and manufacturer of tunnel boring machines, Herrenknecht AG.





“The failure rate of geared motors on our conveyors must be minimal. NORD fulfills this key requirement, despite which drive type they deliver for us.”

Dirk Uphues, Project Manager at H+E

APPLICATION SOLUTION

For the London tunnel conveyors, NORD supplied Helical-Bevel drives with a double-sided smooth output shaft. An expansion coupling transfers the gearmotor’s torque to the belt conveyor. One benefit of this type of design is that it reduces the number of models that must be used. Additionally, the double-sided shaft configuration allows for flexible and convenient adaptations of the conveyor systems to a new site of operation, should H+E wish to reuse them in another project.

Seamlessly constructed

All gears suitable for horizontal and vertical conveyor systems are generally based on a single piece cast housing with no joints or seams, which ensures high resilience against torque and radial forces. This applies even to very powerful industrial gear units providing up to 2.1 million inch pounds of torque, which is required for

extreme conveyor inclines and for moving very large amounts of material. With its unique offset bearing and shaft arrangement, NORD’s UNICASE™ design is compact, but also allows for the use of larger bearings, which leads to increased durability.

Readily available

NORD is able to deliver gear drives with minimal lead times throughout the world. Even during a long-term project such as the “London Crossrail,” this has been a bonus to the customer. When H+E was asked to supply additional short conveyor belts for an unforeseeable amount of manual excavation work in a matter of weeks, NORD delivered the required drive technology within five days of the order.

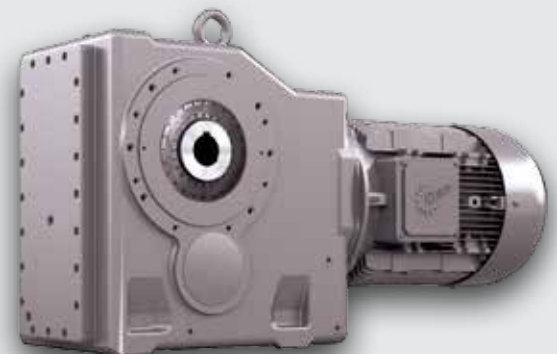


Steady Performance
Every hour, thousands of tons of soil are conveyed from the tunnels.

FOCUS ON THE PROJECT

In the “London Crossrail” tunnel excavation project under central London, reliable NORD drive conveyor systems have been specifically adapted to the soft clay London soil. The rapid transit line construction is currently the largest infrastructure project throughout Europe.

- an emerging new east/west route bridging 73 miles
- an estimated total budget in excess of \$20 billion US





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

▪ www.nord.com/references



NORD Gear Corporation
MEMBER OF THE NORD DRIVESYSTEMS GROUP
info.us@nord.com

Waunakee, WI
800 NORD Drive
Waunakee, WI 53597
Tel. 608.849.7300

Corona, CA
1180 Railroad St.
Corona, CA 92882
Tel. 608.849.0190

Charlotte, NC
300 Forsyth Hall Dr.
Charlotte, NC 28273
Tel. 608.849.0140

NORD Gear Limited - Canada
MEMBER OF THE NORD DRIVESYSTEMS GROUP
info.ca@nord.com

Brampton, ON
41 West Drive
Brampton, ON L6T4A1
Tel. 800.668.4378



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.