



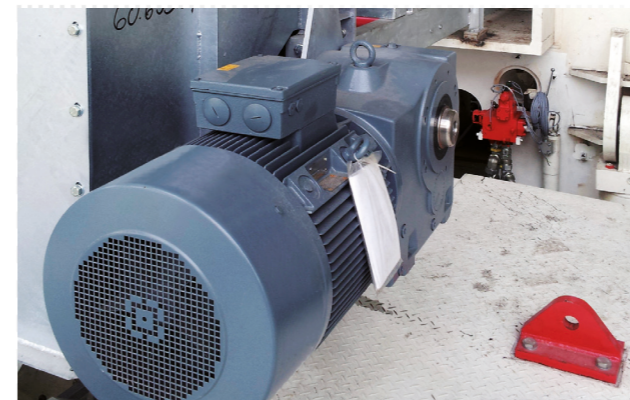
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Tunnel construction for
„London Crossrail“ route



Challenging
material transport



Quick delivery
around the world

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Drive solutions for tunnel conveyors

Case study: H+E Logistik

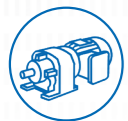




New tunnels cutting through London are now under construction for the "London Crossrail" urban transportation system. Removing the clayey soil from the tunnel is a tricky task for a customized conveyor system and its drive solution.



Tunnel construction
Conveyor belt systems



Geared motors
Helical bevel and worm geared motors

Project challenge

Spanning more than 100 km from East to West, a new rapid transit connection called "London Crossrail" will soon be added to London's public transport network. A number of new tunnels are thus being bored through the heart of the metropolis. H+E Logistik was commissioned to devise a special conveyor solution for taking excavated soil out of the tunnels. The customized system was fitted with geared motors from NORD DRIVESYSTEMS. H+E Logistik was commissioned to devise a special conveyor solution for taking excavated soil out of the tunnels. The customized system was fitted with geared motors from NORD DRIVESYSTEMS. **Demanding transportation task.** – Though "London clay" is easy enough to drill through, the sticky texture of the soil with tensides added at the boring machines makes removing this material from the tunnel all the more challenging. If standard belts were used, the clayey mixture would stick persistently to parts of the conveyor system. H+E Logistik solved the problem by applying special plastic coatings to the belts and

developing a dedicated wiper system that mechanically prevents material from clinging to exposed components.

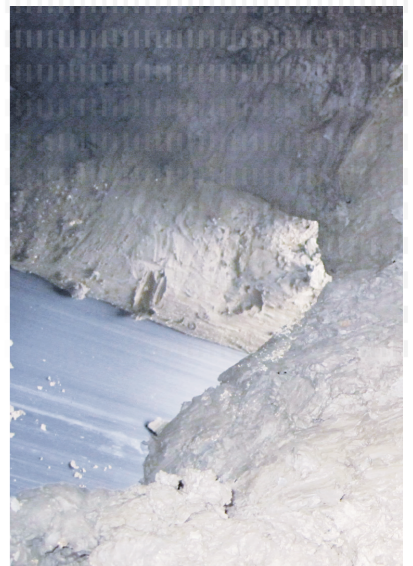
Reliable and reusable. – In order to ensure minimal interruptions in the operation, the system also had to be equipped with a reliable drive solution. Besides dependable performance, high flexibility was another key requirement, since potential redeployment of the systems elsewhere after the completion of the London project had to be taken into consideration from the start. H+E turned to NORD DRIVESYSTEMS for an adequate solution, since various NORD geared motors had proven to be very suitable before in numerous previous cooperation projects over a period of some ten years.

Application solution

For the London tunnel conveyors, NORD supplies helical bevel geared motors with a double-sided, smooth output shaft. An expansion coupling transfers the torque to the belt conveyor. One benefit of this versatile drive design is that it limits the scope of geared motor models that must be managed. In addition, the double-sided types allow for particularly flexible and comfortable 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 particularly high resilience against torque and radial forces. This applies even to very powerful industrial gear units providing up to 242,000 Nm, which are required for extreme conveyor inclines and for

moving very large amounts of conveyed material. With its offset bearing shaft arrangement, NORD's UNICASE design also ensures very compact dimensions, but allows for the use of larger bearings, which achieves enhanced durability. **Readily available.** – NORD is able to deliver most gears and geared motors for conveying applications with minimal lead times throughout the world. Even in a long-term project such as "London Crossrail," this has been a boon to the customer: when H+E was commissioned to supply additional short conveyor belts for unforeseeable manual excavation work in a matter of weeks, NORD delivered all required drive technology within five days of the order.



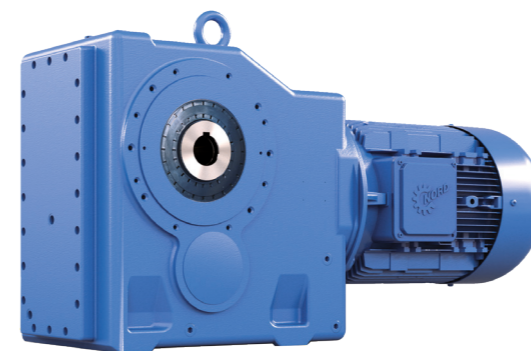
Never tiring

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



Customer profile

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 and the ports and harbor sector. The company develops custom solutions that are thoroughly adapted to unique conditions on location and particular requirements of the application at hand. H+E is a subsidiary of the world's leading developer and manufacturer of tunnel boring machines, Herrenknecht AG.



The project at a glance

In the "London Crossrail" tunnel excavations passing under central London, reliable NORD geared motors based on a sturdy, single-piece cast housing drive conveyor systems that are specifically adapted to the clayey London soil. The rapid transit line construction is currently the largest infrastructure project anywhere in Europe, with

- ▶ an emerging new route bridging 118 km from East to West and
- ▶ a designated total budget in excess of 17 billion EUR.