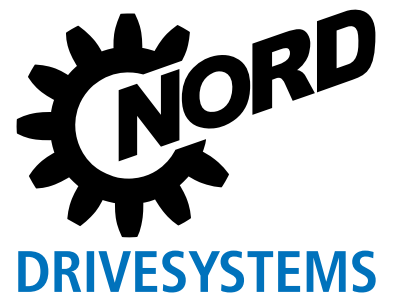


DRIVE SYSTEMS FOR TOOTHPASTE PRODUCTION

CASE STUDY: EKATO SYSTEMS



Toothpaste Production
The largest toothpaste system worldwide

Large Mixing Tanks
Rapid and continuous mixing

High Capacities
Flexible and resilient to wear



Agitator Drives
Robust and compact design



NORD Industrial Gear Units
MAXXDRIVE™ right-angle helical-bevel



The world's largest toothpaste batch production system features giant agitators put into motion by industrial gear motors with output torques well above 200,000 Nm – all within a single-piece cast housing.

PROJECT CHALLENGE



Personal Care Products
Toothpaste manufacturing
batch production system



Geared Motors
Industrial gear units
helical-bevel design

There is a growing trend in the hygiene and personal care industry moving towards the utilization of production facilities in only a few select locations. Due to these changes the production facilities need to produce a much broader variety of products. The production machinery used for these products have to be designed to yield great quantities as well as to provide a high range of flexibility. EKATO SYSTEMS GmbH set out to develop a new toothpaste production system that would meet both of these challenges.

Higher capacity and more variety. – Toothpaste can be made in a continuous process or in batches. The continuous production method may scale well, but is quite inflexible in regards to product changes, since different ingredients sometimes need their own dispensing and blending technology, and recipe changes often call for readjustments. Non continuous systems,

or batch production on the other hand, is much more accommodating to the need for a broader product range, but significant boosts in capacity are dependant upon an advanced engineering know-how.

Robust and compact agitator drives. – In order to create a larger-than-ever batch production mixer, EKATO had to thoroughly consider dosage and dispersion times, blending and homogenization times, as well as vacuum values for the super-sized design. NORD's task as the drive supplier was to configure gears and motors suited to the agitator and homogenizer specifications, along with both high efficiency and durability requirements. The agitator drives were to be installed on top of the production mixers. In order for this to work, they needed to be as compact as possible – in spite of the extremely high performance that was expected of them.

FOCUS ON THE CUSTOMER

Based in Schopfheim, on the outskirts of the Black Forest, EKATO SYSTEMS GmbH is one of the leading developers and manufacturers of process mixing systems for large-scale plants in the cosmetics, pharmaceutical, specialty chemicals, and food industries. In addition to powerful industrial agitators, the company's product range comprises of high pressure homogenizers, solids mixers and dryers as well as mechanical seals and supply systems.





APPLICATION SOLUTION

UNIMIX systems consist of a large vessel that is constructed with a homogenizer, an agitator, and various dispensing mechanisms for the introduction of ingredients into the mixing process. Until recently, toothpaste batch production vessels were designed for no more than 4,000 to 5,000 liters. The two newly engineered mixers by EKATO hold roughly twice the volume of the largest previously available equipment. The UNIMIX production system achieves approximately three times the maximum output of the existing systems.

Huge loads and high torques. –

Homogeneous product quality is the most important concern within this application. This means that the drive solution must respond quickly, without failing, as well as support the formidable forces onto the agitator shaft due to the mixture's high viscosity. NORD configured and supplied two motors that deliver more than 150 kW of power with industrial gearing that provide nominal output torques of 242,000 Nm.

Super-sized space-savers. – NORD is the only manufacturer in the world to produce industrial gear units as powerful as these in a single-piece cast design. Despite the massive size, the 3-stage SK 15407 helical bevel gear units own a compact footprint.

The one-piece housing design has many advantages including:

- a highly reliable and leak-proof construction,
- bearings accommodating greater torques,
- resilience against axial and radial strain,
- low maintenance needs and a long service life.



Robust construction. – Industrial geared motors at the agitator handle massive loads.

FOCUS ON THE PROJECT

In the world's greatest toothpaste production facility, the agitators of EKATO's giant UNIMIX systems are moved by powerful industrial gear units from NORD, which rely on the resilient gear housing cast in a single piece. Providing about three times the capacity of the previously largest toothpaste facility, the plant features:

- Two mixers with an effective volume of 10,000 liters each.
- An output of 6,000 to 11,000 kg of product per hour.



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.