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LOEDIGE  
Montage / Maschinenabnahme  
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Mixing, drying and granulation



Ready for use in the food sector



Robust drive technology for process engineering

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Drive solution for gentle mixing processes

Case study: Loedige





*"The cooperation with NORD was smooth and efficient. We only needed to mount the drives on the 18 mixers and after short tests were then able to ship the machines to West Africa for commissioning."*  
**Christian Schilken, Vertrieb Life Science Technology, Lödige**



**Food industry**  
**Mixers**



**Industrial gear units**  
**Helical in-line gear units**



**Geared motors**  
**Helical in-line gear units**  
**Parallel shaft gear units**

**Project requirements**

The FKM series ploughshare batch mixers operate according to the hurling and whirling method, which was developed by Lödige. The material to be mixed is always in full contact with the blades, so that there are no low-movement zones. With this technology, various process stages can be combined, e.g. mixing, drying and granulation of a product. Mixing what is difficult to mix. For a food manufacturer in West Africa, Lödige built eight large and ten smaller mixers for use in a newly constructed production facility for instant soups and bouillon mixtures for the West African market. For various recipes, powders with a high salt and sugar content, colourants, aromatic oils, spices, melted fats such as palm oil and poultry fat as well as other liquids have to be as homogeneous as possible. Due to the different solubilities of the ingredients in fat and water, this is a very demanding task. The Lödige mixers must be able to quickly achieve the required

properties for each recipe and batch in a precise and reproducible manner. The right power on the drive shaft. NORD DRIVESYSTEMS provided the necessary drives for all 18 machines. The drive shaft forms the heart of the mixers, on which the precisely calculated and aligned mixer blades are mounted, and which gently transfers the necessary mechanical energy into the material which is to be mixed at the right speed. The NORD industrial gear units reliably transfer motor powers of up to 110 kW to the mixer drive shafts.

**Application solution**

For the eight large mixers with a gross volume of 3,000 litres each, NORD supplied eight SK 7207 V helical in-line gear units and couplings with 140 mm x 250 mm solid shafts, which with a speed ratio of 14.20:1 and up to 1,480 rpm, provide an output torque of 10,078 Nm. Industrial gear units in UNICASE housings. Machining of all bearing points and sealing surfaces in a single step ensures high precision of the axes, quiet and low vibration running, as well as a longer service life and less maintenance. For example, with a one-piece industrial gear unit, there is no separating joint in the housing and therefore no sealing surfaces which are subjected to torques. Last-not-least, with regard to the planned continuous production of the new plant, reliable low maintenance operation is essential. Large torques, even for small mixers. NORD equipped four other batch mixers, each with a

production volume of 1,200 litres, with complete two-stage helical geared motors, which with motor powers of 30 kW and a gear ratio of 12.51:1 deliver torques of up to 2,415 Nm to the drive shafts. Five smaller batch mixers with 15 kW parallel shaft geared motors with hollow shafts and drive torques of 1,061 Nm produce dry pre-mixtures along the process chain, which are then further processed in the large batch mixers. For the development of products, the customer ordered a further 130 litre laboratory mixer with a 7.5 kW helical geared motor. NORD supplied the geared motors ready for installation and equipped for operation with food grade oil class CLP PG H1 220.



**Optimum operation**  
 The UNICASE concept from NORD ensures high precision of the axes, quiet, low vibration running, as well as a longer service life and less maintenance.



**Customer profile**

The Paderborn company Gebrüder Lödige Maschinenbau GmbH specialises in the production and development of application-specific process technology, and is a recognised expert for basic process engineering operations such as the mixing, drying and granulation of bulk materials. With the development of its ploughshare mixer in 1949, Lödige caused a revolution in mixing technology.



**The project at a glance**

For a large order for a food manufacturer in West Africa, Lödige built 18 ploughshare batch mixers. NORD DRIVESYSTEMS provided the necessary drives for eight large and ten smaller mixers.

- ▶ SK 7207 V helical in-line industrial gear units and couplings
- ▶ Two-stage helical geared motors with powers of 30 kW
- ▶ Parallel shaft geared motors with powers of 15 kW