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DRIVE SYSTEMS FOR GRAIN MILLS

CASE STUDY: ARNREITER MÜHLE



**Mill and
processing plant**

**Rotary discharger drives –
robust and durable**

**Micro dispenser drives –
ensuring high precision**

**Explosion-protected
integrated systems**

**Mechatronic
drive units**

NORD DRIVESYSTEMS Group

- Family business from Bargteheide near Hamburg with 4,000 employees
- Drive solutions for more than 100 branches of industry
- 7 production locations worldwide
- Present in 98 countries on 5 continents
- More information: www.nord.com



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In grain mills, NORD drive solutions are used for fans and blowers, rotary dischargers, bucket elevators, and other conveying machinery. Due to the presence of finely ground grains and seeds, such applications require explosion-protected systems.



"We need highly flexible production machinery for variable processing stages. We have found NORD systems to be very versatile in our machines."

**WALTER ARNREITER,
GENERAL MANAGER, ARNREITER MÜHLE**



FOOD INDUSTRY
Grain mill and processing plant



GEARED MOTORS

PROJECT CHALLENGE

At Arnreiter Mühle in Austria, grain is milled as well as refined in various processes. This highly automated mill utilizes a wide range of machines for steaming, flaking, crushing, grinding, extruding, roasting, cooling, drying, and peeling. Through these treatments, the shape and characteristics of grains and seeds are changed to improve storage life, digestibility, and baking properties, and to reduce bitterness.

Extensive conveying systems. A variety of conveying systems featuring flexible drive solutions is required to achieve an efficient transport of particulate and free-flowing media from one processing stage to the next. As a company that is fully committed to sustainable production, Arnreiter sought to install robust, low-maintenance drives that would provide a long

service life as well as ensure highly reliable continuous operation to safeguard excellent quality of the end products.

Dust hazard. As raw materials are finely ground, the atmosphere throughout the mill is enriched by dust particles. Electrical drives must therefore be explosion-proof. Drawing on a versatile portfolio of mechanical, electrical and electronic drive technology certified for use in hazardous areas, NORD DRIVESYSTEMS was able to provide various different types of geared motors as well as integrated mechatronic drive systems for distributed operation.

APPLICATION SOLUTION

NORD geared motors drive belt and bucket elevators that take raw materials from silos on the upper floors to processing machinery elsewhere in the mill. Process media are then fed through a pipe system with a total length of 2,500 m. The low-density fraction comprising small hard particles, dust etc. is removed from the grain in an air-recycling aspirator and taken out by a screw conveyor. Rotary dischargers ensure proper volumetric dosing of products. Micro dispensers allow for adding small components.

Highly durable design. All of these material conveying and distribution systems are also equipped with NORD geared motors. Thanks to superior manufacturing quality, NORD drives require only minimal maintenance.

Comprehensive explosion protection. NORD DRIVESYSTEMS supplied Arnreiter with various category 3D drive units for use in ATEX zone 22. These included geared motors as well as integrated mecha-tronic systems for distributed operation, i.e. geared motors fitted with local drive controllers and provides explosion protection solutions for drive systems as a whole, offering both geared motors and locally installed or cabinet-mounted frequency inverters in explosion-proof versions. Every month, NORD DRIVESYSTEMS manufactures and delivers some 1,500 dust or gas explosion-protected drive systems suitable for ATEX zones 1, 2, 21, and 22.



Grain cleaner. NORD-driven screw conveyor removes low-density fraction in air-recycling aspirator.

FOCUS ON THE CUSTOMER

Arnreiter Mühle GmbH Based in Wallern, Austria, Arnreiter Mühle GmbH produces processed grains and oil seeds primarily for customers in the food industry. A family enterprise founded almost 200 years ago, Arnreiter is fully committed to sustainable production: the mill processes crops grown in the region and strives to use as little resources as possible in production. The site even has its own small power station that generates some of the required energy.



FOCUS ON THE PROJECT

In the most recent retrofit of milling and processing systems at the long-established Arnreiter Mühle in 2009, Swiss process technology specialist Bühler installed various state-of-the-art machines featuring NORD drive solutions. The operation with a connected load of 1,400 kW is capable of:

- milling up to 80 tons of grain per day and
- further processing up to 20 tons of milled grain per day.



Running a unique milling and processing operation: Walter Arnreiter, General Manager.