Bauer BF Series Geared Motors Help Make Lumber Production Cleaner & Faster

Bauer Gear Motor®
Altra Industrial Motion

Bauer BF Series Geared Motors Help Make Lumber Production Cleaner & Faster

BF Series gearboxes feature high-tensile, case-hardened steel gearing with strong, non-flexible pinion design and oversized input bearings to ensure longevity of the gearbox.

Timber trade is driven by a wide range of factors, including cost and the availability of specific varieties and product types.

Lumber was once the archetypal local building material. Our forebears built their homes using wood they sourced from the surrounding forests. Today, however, forest products have become a truly global industry. According to the United Nations Food and Agriculture Organization (FAO), global production of sawn wood products reached 468 million m3 in 2016, and has risen by 16 percent since 2012.[1]

Timber trade is driven by a wide range of factors, including cost and the availability of specific varieties and product types. Increasingly, however, end-users are interested in the quality and environmental sustainability of their timber sources. In Europe, for example, suppliers are required by law to be able to prove that the timber products they offer for sale are not the result of illegal logging. The industry has developed robust "chain-of-custody" systems that allow products to be tracked all the way from forest to final use.

For participants in the supply chain, meanwhile, there are also strong incentives to optimize the environmental performance of their operations. That's driving changes in the technologies incorporated into the specialized equipment used to harvest, transport and process timber products.

One key trend is the replacement of hydraulic actuators with electrically-powered systems. Once the mainstay of heavy lifting and handling equipment systems, hydraulic power is steadily falling out of favor in the forestry sector. In part, that's due the risks associated with fluid leaks, which can contaminate the environment and spoil valuable product.

And, as in other sectors, modern high-powered electrical actuators provide additional advantages too. These systems typically replace a hydraulic cylinder with an assembly that includes a geared motor and a ball or roller screw to create linear motion. They tend to be more robust, require less maintenance and provide enhanced control accuracy compared to their hydraulic counterparts.

When one lumber-handling equipment manufacturer needed a robust electric geared motor solution to replace hydraulic cylinders on its tilt hoists, it turned to Bauer Gear Motor, part of the Altra Industrial Motion Corp., for a solution.

Tilt hoists are a key component of large-scale lumber production. During operation, full bundles of stacked, rough-cut lumber are moved onto the hoist. The entire bundle is then lifted and tilted. As the tilted hoist slowly raises the bundle, single layers of

boards are released from the top of the bundle and slide onto a feeder conveyer that transports them for further finishing.

In this application, the customer wanted to adapt an existing design, replacing the hydraulic cylinders that controlled the hoist's tilt motion with electrically actuated ball screws. A motor and gearbox solution was needed that would deliver equivalent force and speed. The customer also needed confidence that the system would operate reliably in the timber processing environment, where components can be exposed to high levels of dust, moisture and other contaminants.

To meet the customer's application requirements, Bauer recommended its BF60 parallel shaft gear motors, with two 30 HP (22kW) units installed on each hoist, driving long ball screws. The electric gear motors combined with the ball screws provide a more precise, controlled movement of the hoist compared to hydraulic cylinders. And, of course, the possibility of damaging fluid leaks and cylinder creep/drift are eliminated.

BF Series gearboxes feature high-tensile, case-hardened steel gearing with strong, non-flexible pinion design and oversized input bearings to ensure exact tooth meshing and longevity of the gearbox. Those specifications mattered to the customer, since the transmission in the hoist would have to resist high peak loads during loading and unloading operations. To reduce the risk of impact damage, the gearing is enclosed within a thick, reinforced, high-tensile cast housing.

Another priority of the customer was to ensure that lubricating oil would not escape from the mechanism and contaminate the working environment. The Bauer BF60 units met its requirements as they feature a 3-piece labyrinth input seal to protect against oil leakage in any orientation. The efficient seals also serve to reduce the risk of dust or moisture ingress into the gear mechanism or motor. Like all Bauer motors, the BF60 units used in this application are IP65 rated as standard, making them suitable for prolonged operation in dusty environments and when exposed to jets of water.

An aluminium die-cast cage rotor ensures high reliability at high starting torques and low starting currents – a significant benefit in crane and hoist applications where the highest torques may be required at zero speed as a load is accelerated from a stationary position.

Bauer BF Series gearboxes are available with motors from 0.03kW to 75kW. Units feature an economical and space-saving shaft mount design with integrated torque arm for easy and convenient installation. Ten gearbox sizes in the range can provide torque from 90Nm to 18,500Nm. All Bauer motors are manufactured in-house allowing for customization to meet specific application requirements.

Bauer application engineers routinely work with their customers from the initial concept stage of a project, to advise on the selection and specification of the optimal gearbox solution. By working as a design partner, Bauer ensures that geared motor systems are integrated into the overall design of a machine in a way that maximizes performance, efficiency and reliability.

Tilt hoists are used to lift and tilt entire bundles of rough-cut lumber. As the tilted hoist slowly raises the bundle, single layers of boards are released onto a feeder conveyer that transports them for further finishing.

1. http://www.fao.org/3/I7034EN/i7034en.pdf

About Altra Motion

Altra is a leading global designer and producer of a wide range of electromechanical power transmission and motion control components and systems. Providing the essential control of equipment speed, torque, positioning, and other functions, Altra products can be used in nearly any machine, process or application involving motion. From engine braking systems for heavy duty trucks to precision motors embedded in medical robots to brakes used on offshore wind turbines, Altra has been serving customers around the world for decades.

Altra's leading brands include Ameridrives, Bauer Gear Motor, Bibby Turboflex, Boston Gear, Delevan, Delroyd Worm Gear, Deltran, Formsprag Clutch, Guardian Couplings, Huco, Jacobs Vehicle Systems, Industrial, Kilian, Kollmorgen, Lamiflex Couplings, Marland Clutch, Matrix, Nuttall Gear, Portescap, Stieber, Stromag, Svendborg Brakes, TB Wood's, Thomson, Twiflex, Warner Electric, Warner Linear and Wichita Clutch.

Bauer Gear Motor®
Altra Industrial Motion

Europe
+49 711 3518-0
www.bauergears.com

US
1-800-387-0130

For a complete list of our global sales offices visit:
altramotion.com/contactus

P-8818-BGM 10/19