

Reducing Drag Conveyor Downtime

4B BOLT-N-GO CHAIN AND BOLT-ON PADDLES ENABLE FAST REPAIRS, LESS MAINTENANCE



BEFORE: The old style of drag conveyor at the rice mill used bent welded-steel flights and UHMW paddles. Photos courtesy of 4B Components Ltd.



AFTER: Bolt-N-Go chain features nylon paddles bolted directly onto the chain without the need for welded-steel backers.

Problem

An Arkansas rice mill was operating with multiple flat-bottom drag (chain) conveyors, some as long as 240 feet, using steel-bushed chain, welded steel backer flights, and UHMW paddles.

Tramp material occasionally would get into the conveyors, obstructing the movement of the chain and damaging or breaking paddles. Broken paddles carried downstream would damage other pieces of equipment and cause frequent shutdowns. The chain was difficult to dismantle for paddle repair, and reshaping the steel backer flights inside the conveyor required a hot work permit, resulting in extended downtime and lost production.

Solution

Due to the broken paddles, the mill's staff contacted **4B Components Ltd., Morton, IL (309-698-5611)**, to inspect the mill's equipment and propose improvements.

Following an on-site product demonstration, the mill decided to use 4B's chain and bolt-on paddle system – Bolt-N-Go.

The process started with a three-month trial with 4B replacing the steel-bushed chain and welded flights on a single conveyor with its Bolt-N-Go chain and custom-made dark

green bolt-on paddles. After the trial, the mill was impressed with the results and converted six more conveyors in the plant to Bolt-N-Go.

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The chain's unique bolted construction allows the paddles to be quickly and easily replaced while the chain is in tension.

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A single bolt secures the paddles to the chain, making it fast and simple to install – two to three times faster than traditional welded steel – and nylon Bolt-N-Go paddles are flexible enough to bend past obstructions and return to shape. The nylon paddles typically last longer than steel paddles that bend and need replacement, and the nylon can be trimmed to suit conveyor widths, reducing spare inventory.

Another advantage of the system is its dark green nylon material, which is detectable by a plant's color sorter. This was particularly important for the mill.

The Bolt-N-Go's chain weighs approximately 40% less than traditional welded steel chains, making handling of the product easier and safer for installation. Lower chain weight results in improved energy efficiency, less wear and tear on components, and increased machine uptime.

Bolt-N-Go chain can be assembled without using welders and grinding tools, eliminating the need to acquire a hot work permit and set up fire mitigation equipment. Chain repairs can be made with simple hand tools and while the chain is in tension, so repairs can be performed inside the conveyor.

The mill's operators were so pleased that they are converting every drag conveyor to Bolt-N-Go as the welded chains need to be replaced.

Tom Brandes, contributing writer