

# Roll Returns

## *New V-shaped pulley deflects material, minimizes costly downtime and extends conveyor belt life.*

Applying the latest technology on the return side of the conveyor belt could alleviate some very sticky situations. Producers are finding that new self-cleaning, abrasion-resistant urethane return rolls are indeed delivering a healthy return on investment in numerous applications where the use of traditional rolls have resulted in material buildup, tracking challenges, belt damage and premature component failure.

Salt River Materials Group and Knife River Corporation are companies who stress sustainability. As such, each seeks cost-effective technologies which minimize waste and downtime, while maximizing resources. With the latter mission in mind, these aggregate producers recently replaced traditional steel and/or rubber return rolls with new Urathon™ Return Rolls manufactured by Morris, Minnesota-based Superior Industries.

Comprised of specially-formulated polyurethane material which offers greater wear life and abrasion resistance, Urathon Return Rolls are engineered with 90-durometer discs designed with a self-cleaning flat surface to prevent any material buildup between the discs or on the belt. And typically, material buildup is the leading cause of premature belt damage, says the manufacturer. The result for the producers is a component that essentially extends the life of the entire conveying system while reducing maintenance and operating costs.

### **Salt River Materials Group**

A division of Phoenix Cement Company, Salt River Materials Group (SRMG) is the only Native American-owned producer of portland cement in the nation, and is also a major manufacturer of sand and gravel, fly ash, and pozzolans throughout Arizona and the Southwestern United States. Also, as an innovator, SRMG is working to develop markets for more energy efficient lightweight aggregates produced from an abundant coal combustion product, bottom ash, which is used in applications such as concrete block, cement board, cement manufacturing and structural lightweight concrete.

SRMG Plant Manager Gary Mackey oversees daily material processing. As to his prior use of steel return rolls, Mackey says, "Clay sticks to steel like a magnet, causing buildup that makes the steel rolls almost double in size. This leads to all kinds of problems," he says. Mackey explains that if the clay would build up on one side only, it would often push the belt over, making it run up against the frame. "Some of the steel rolls got so heavy that they would stop rolling. Then the belt would simply slide across the top of them, and potentially end up ripping if you

didn't catch it in time," he says.

Mackey experienced similar drawbacks with rubber disc-type return rolls. "We didn't find them to be a high grade rubber at all, and they wore out very quickly. The rubber disc itself would just disappear in two to three months," he says.

Finally, Mackey says that his problems were solved after a visit from Kimball Equipment, the local dealer for Superior Industries. "They set me up with the new urethane return rolls and I am just amazed with them. Even after eight months or so, we can't detect any wear and there is zero buildup. And in this industry, to have a return roll with a good bearing is really a huge deal," he says, adding that he will apply the new rolls on each of his conveyors regardless of whether the material handled is wet or dry. "If these rolls can save me time and money, and eliminate all the downtime we used to have in changeouts, then there is no reason to look any further," he says.

### **Knife River Corporation**

Headquartered in Bismarck, North Dakota, Knife River is one of the top ten U.S. aggregate producers with more than 1.2 billion tons of aggregate reserves in strategic locations in 14 states. Its product lines also include asphalt, ready-mix concrete, building materials and construction services.

Knife River Superintendent Mike House has installed the new urethane return rolls into each of the three locations he manages, the first being a sand and gravel facility where he says Urathon rolls are a welcome replacement over "fast-wearing" rubber-disc return rolls which had to be changed out every three to four months. "I have had nothing but good luck with them,"



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he says, and as a result he next installed them at his barge loading operation, an off-load system which according to House, “contained some components that sailed over with Columbus.” He explains that this old system had a lot of belt tracking issues. “The belt would run at an angle and would eat up a rubber disc roll, until they would flatten and stop. So we put in the Urathon return rolls and even after almost a year, we didn’t notice any significant wear whatsoever,” he says, adding that soon after the new return rolls were removed from the older system and were integrated into a new system erected at the site. Lastly, House recently decided to install Urathon rolls at his third location, a shot rock pit where the rubber-disc return rolls had also been developing “flat spots” which led to frequent changeouts.

House says he particularly likes the wider disc profile of the new Urathon rolls, which he feels is a big factor in wear resistance. “The urethane material is wider where it mounts to the shaft and also where it meets the conveyor belt at the ends. This also aids in better belt tracking even through the changing seasons and weather conditions,” he says.

Importantly, House stresses that the Urathon return rolls are easy to retrofit into any of his systems. “There is a little adaptor that we can use so that the return roll will fit in the same hanger. We just take the old return roll out and the new Urathon roll pops right in. It is simple, and the crew can change them right at the belt,” he says.

Finally, House says that beyond the components themselves, Superior Industries and its local dealer Mill Supply (recently purchased by Motion Industries), offer the benefit of looking closely at any operational challenges and providing a variety of solutions. “I don’t want to listen to sales people who just want to tell me how great their equipment is. It is much better when the vendor is willing to dig into a problem and do some thinking for you,” he says.

Clearly for Knife River, and for Salt River Materials Group, the right roll is delivering the desired returns.