Road Builder Keeps Paving Machinery on Schedule with Conveyor-Belt Rip Repair Plates

Industry
Road construction

Application
Concrete placer conveyor

Product
Flexco® Bolt Solid Rip Repair Fastener

Objective
Minimize torn-belt downtime.

Conveyor Detail
Belting: 1524 mm (60") wide, 136 kg (300 lb), 3 ply rubber belt, 4.8 mm (3/16") top cover
End Pulley Diameter: 305 mm (12")
Belt Length: 15.2 m (50') overall — approx 7.6 mm (25') between end pulley centers.
Configuration: flat, horizontal (retracts to vertical position when not in use), with full length skirt boards and tightly fitted scrapers.
Typical Load: mixed, wet concrete, 7.6 m3 (10 cu. yds.) within a few minutes.

Problem
The concrete placing machine receives fresh concrete from a continual parade of ready-mix trucks and lays down a 7.3 m (24')-wide, 280 mm (11")-thick blanket for finishing by the paving machine close behind. While racing the calendar to finish widening a 16 km (10-mile) stretch of Interstate highway ahead of the winter snow, the placer was disabled by a piece of scrap iron that slashed the belt nearly through. Two cuts, 6 m (20') and 3 m (10') long, extended for nearly 60% of the belt length. The belt would not last long under the weight of fresh concrete. Having a "saddle" of new belting vulcanized would cost several thousand dollars. A totally new belt would cost even more and add up to a 10-day delay.

Solution:
Flexco® #140 Rip Repair Plates sutured the wounds, with 36 plates spaced at 254 mm (10") intervals. First, bolt-holes were punched with a special boring tool and locating templet. Then, to avoid interfering with the tight scrapers needed to remove wet concrete carryback, each plate's 64 x 25 mm (2-1/2" x 1") shape was mortised out of the belt's top cover with a router to a depth of about 4.8 mm (3/16") so the top plates would nest flush with the surface. Finally, top and bottom plates were drawn tightly into the belt with two heat-treated bolts, while short teeth formed into the plate edges near the bolts increased each plate's grip. These special bolts, inserted upwards from the underside of the belt, have flat heads that seat into pockets formed in the bottom plates to assure smooth passage across drive pulleys and idlers.

Result:
The entire repair job was completed in less than eight hours by the regular work crew, avoiding at least a full day of vulcanizing downtime (and probably more), waiting for the vulcanizing contractor's crew to arrive. Total cost, less than $35 for the Flexco plates, was considerably less than vulcanizing. The rest of the crew simply moved ahead to grade another section of roadbed and relocate machinery, so the overall construction schedule was not disrupted by the relatively brief downtime. With repair plates installed, the placer belt ran through the rest of the season, postponing installation of a new belt until winter finally brought roadwork to a stop.

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