



*TECHNICAL ARTICLE SERIES*

HT-1010

# Deflection Elbow Ends Elbow Wear Problem in Paving Plant



**HAMMERTEK®**

HAMMERTEK CORPORATION

USA:  
2400 Emrick Boulevard, Bethlehem, PA 18020-8006  
1 800 505 9665 1 610 814 2273 Fax: 1 610 814 0600  
sales@hammertek.com hammertek.com

# Smart Elbow® Ends Elbow Wear Problem in Paving Plant

A division of Western Mobil, Western Paving Corporation makes asphalt for their own extensive paving operation as well as supplying others'. The plant produces 29 different paving product mixes, including recycled mixes, at the fully computerized facility.

As part of the manufacturing process for asphalt paving materials, granite dust from the rotary kiln is collected and pneumatically conveyed to a point where it is combined with oil and added back into the mix. This compound then functions as a binding agent, a vital component without which the operation can't run.



## The Problem

The highly abrasive, fine granite dust was wearing through steel long radius sweep elbows equipped with concrete strongbacks in about six weeks, at which point the elbows were leaking hot material. This system operates at the rate of 15 tons per hour, so a leak requires rapid shutdown of the line for repair. When these line stoppages and the readings of a visible emissions monitor which Western Paving has been employing out of a desire to comply with pending legislation were taken into account, the steel sweep elbows were creating an unacceptable situation in terms of waste, downtime and clean-up liabilities.

## The Smart Solution

Six 90° HammerTek Smart Elbow® deflection elbows were installed in place of sweep elbows. System shutdown due to elbow wear was eliminated because of the new elbow's unique characteristics.

## Intelligent Engineering

The Smart Elbow design conveys by deflection, not by conveyed material impact with elbow walls like virtually all other elbow types. On system start-up, a loose, slowly rotating ball is formed in the specially designed vortex chamber. This self-renewing mass of conveyed material cushions impact and sets up a deflection zone which sends the flow stream "around the corner." Most of the material being conveyed never actually reaches the back wall of the elbow.

## Assured Solutions

Western Paving originally purchased three Smart Elbow products in 1988, then another three in 1990. The HammerTek elbows are lasting about five years, as opposed to six weeks for the long radius sweeps. In other Western Paving plants, plans have been made to phase in the Smart Elbow models (due to superior wear characteristics) as other equipment wears out. Western Paving also reports the added benefit of reduced line pressure on the Smart Elbow-equipped system.

## **Substantial Environmental Impacts**

HammerTek Smart Elbow products can save your company time, expense and reduce regulatory paperwork by not failing in the first place. Truly an intelligent "ounce-of-prevention" for conveying systems where any incidents of sweep elbow failure has environmentally sensitive consequences.

Fact: The patented Smart Elbow design provides maximum environmental protection by eliminating elbow wear due to abrasive impact and friction.

Fact: The Smart Elbow deflection elbow eliminates/reduces: plugging, surging, turbulence, noise, product degradation, and streamer formation.

## **HammerTek Facts**

Well into its second decade of operation, HammerTek Corporation has established a solid reputation as an innovative U.S. manufacturer of "problem-solving" conveying elbows. The design and flow characteristics of the Smart Elbow deflection elbow are patented in the U.S. and 15 other countries.