

# Solving conveyor belt slippage

THE careful design work put into developing ASGCO's new Arrowhead Ceramic Lagging is starting to pay off for its customers, with one Pennsylvanian operation reporting a dramatic drop in recorded down time due to conveyor belt slippage.

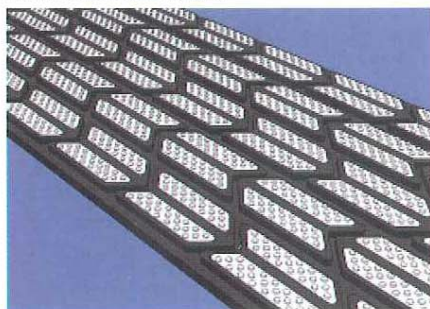
Conveyor components and accessories specialist ASGCO's patent-pending Arrowhead Ceramic Lagging provides solutions to problems experienced with conveyor belt slippage around the drive pulley and severe wear problem on snub and bend pulleys.

This solution was ideal for Suez Energy Generation NA's Northeast Power 50MW Cogeneration Facility, located in McAdoo, Pennsylvania—in the heart of the eastern, anthracite coal-mining region. NEPCO consumes 560,000 tons of waste anthracite coal or culm each year and generates 300,000t of ash annually, which are used to reclaim an abandoned surface mine nearby.

The facility had a problem with the conveyor belt slippage and excessive wear on the rubber pulley lagging on two feeder conveyors, according to ASGCO vice president Aaron Gibbs. The first was the FH1001 conveyor, which is a 48-inch wide feeder under a truck dump that experienced numerous belt slippage problems, especially when the plant would try to start the belt with a full load on the feeder.



Ceramic Lagging on a conveyor belt at an international cement plant.



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## GOOD PULLEY LAGGING QUALITIES

- Must operate in both dry and wet conditions
- Require a minimum force to drive the conveyor belt
- Is maintenance-free
- Tiles stay embedded in the rubber
- Material does not build up on the pulley
- Is simple to install
- Excellent abrasion resistance
- Durable design

After the installation of the Arrowhead Ceramic Pulley Lagging, plant manager Ed Missal noticed the new product solved problems of conveyor belt slippage due to the increased coefficient of friction between the ceramic tiles and the conveyor belt.

After a six-month trial on the FH1001, the plant then had ASGCO lag the FH1051 48in feeder conveyor belt that was also experiencing the same problems that the FH1001 had prior to the ceramic lagging. After the installation, the slippage and uneven wear problems were no longer a concern on the conveyor.

"Since the installation of the Arrowhead Ceramic Lagging, the plant has not had one case of recorded down time due to conveyor belt slippage. That says it all," Gibbs said.

ASGCO decided to develop the Arrowhead product after it identified industry need for a better ceramic pulley lagging. Engineers started by examining the problems with existing pulley lagging and deciding characteristics that a good pulley lagging must have.

"One of the challenges in selecting the proper pulley lagging is that each conveyor belt has its own characteristics. With the increase in popularity of ceramic pulley lagging to solve the problems of conveyor belt slipping in wet or cold conditions or solve the problems of wearing prematurely on high tension snub and bend pulleys. Ceramic pulley lagging has become a necessary product in every plant," Gibbs said.

Arrowhead has been designed for the highest drive factors and field and laboratory testing has shown Arrowhead ceramic has up to four times the coefficient of friction versus standard rubber

drive lagging and abrasion resistance and wear ability that can be more than eight times that of standard rubber lagging, the company said.

The Arrowhead tile is fully encapsulated in rubber on all five sides to assure an excellent bond between the rubber and the tile. It also maintains better adhesion due to the radiused curved edges of the tiles. Laboratory testing has shown it has a better bonding adhesion to a curve surface than to a 90-degree point as seen on conventional square ceramic lagging tiles.

Improved belt tracking due to the Arrowhead patterns self-cleaning ability, which reduces material build-up and thereby eliminates the major source of misalignment, has also been seen as a major advantage to the design of the tiles. Arrowhead lagging is the only ceramic lagging that provides diagonal grooving to allow water and material to shed away from the pulley.

Also important is the ability of the rubber strip to maintain its bond to the pulley. Arrowhead has good bonding strength due to the laminated compound of its abrasion-resistant rubber and its 3mm neoprene compound vulcanized into the bottom-side of the lagging. The neoprene-bonding layer provides excellent adhesions (90 pounds per square inch) to the pulley with the cold or hot vulcanizing cements that are used to apply the lagging strip.

The strips also come buffed on all edges to assure thickness tolerances are better than .01in, with tapered edges to give the tightest seams possible. **AL**

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