



PROBLEM SOLVED™ PAPER

SOLUTION: Martin® Air Cannons

INDUSTRY: Mining

LOCATION: Ispat Inland Mining Company
Virginia, Minnesota



Filter cake is released from the filter sections with the discharge of air from a Martin® Air Cannon.



A Martin® Air Cannon is installed on each vacuum filter at Ispat Inland's taconite processing plant.

PROBLEM

To preserve the life of the air cannon's piston and sealing o-rings, oil was added to the air supply. But as the air cannons would discharge the oil would collect on the filter, causing the filter to plug or bind. Filter efficiency would go down, which in turn reduced plant output and increased maintenance problems.

SOLUTION

Martin® Air Cannon Replacement Valve

To eliminate the need for adding lubrication to the air supply, the plant installed Martin® Valves on the air cannons. Designed for applications where the temperature does not exceed 200°F (93°C), this patented replacement valve features a short 5/8-in. (16-mm) stroke and a piston fabricated of Nylatron® Nylon to provide a long life. The piston operates without requiring lubrication in the air stream and is guaranteed by Martin Engineering for two million firings.

RESULTS

The Martin® Valve has been in operation since March 2002. Since then, the Martin® Air Cannon has discharged every eight seconds during the plant's round-the-clock operating schedule, achieving roughly 3.5 million cycles per year without problems or maintenance.

Martin® XHV Air Cannon Valve is protected by U.S. Patent No. 5,853,160.

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