PROBLEM SOLVED™ PAPER

SOLUTION: Martin® HURRICANE®-air canon with „Positive-Pressure-Firing“

INDUSTRY: Metal recycling

TITLE: Optimization of the electronic waste recycling process

Flue gas duct cleaned with Martin® Hurricane air cannon

Air cannons on the flue gas duct

Solenoid valve cabinet installed in a protected environment

Problem

Metal recycling is a fundamental pillar of a modern circular economy that conserves natural resources, reduces energy requirements and avoids the loss of valuable materials. The recycling of electrical equipment places special demands on the recycling process due to the complex structures and material compositions, while the processing requires special technologies. A common problem in the treatment of complex recycling materials are hot, toxic combustion exhaust gases that are contaminated with suspended solids and clog the flue gas duct after heat treatment. The clogged ducts then have to be laboriously cleaned manually, with the toxic deposits posing a risk to employees. Extreme protective measures for the cleaning staff are essential.

Solution

To solve this problem and optimize the process, the HURRICANE® air cannon with "positive pressure firing" technology is used. Several air cannons are arranged in series and are fired successively. This solution ensures effective removal of flue gases and suspended particles from the flue gas duct and transport of the flue gases to the filtration system. This prevents the duct from becoming blocked or overgrown with material. It also increases employee safety by minimizing the risk of accidents and damage to health. Any cleaning inside the exhaust duct by employees has been reduced to a minimum.

Result

The use of the HURRICANE® air cannon with positive pressure firing technology in the flue gas duct not only improves process efficiency, but also increases the availability of the entire recycling system and significantly increases the available operating time. The positive pressure firing technology also enables longer pneumatic control lines - the positive-acting valve enables the control solenoid valve to be positioned up to 60 meters away from the tank. The solenoid valve cabinet can therefore be moved from a harsh environment to a "safe" environment; environmental conditions have no influence on the solenoid valve cabinet. The air cannon can be easily integrated into existing systems and is simple to operate. Thanks to its robust design, it is also suitable for use in demanding environments.

Martin Engineering • One Martin Place • Neponset, IL 61345-9766 USA
Ph. 800-544-2947 • Fx. 800-814-1553 • info@martin-eng.com • www.martin-eng.com