

Steel Galvanizer Installs Automatic Magnetic Separator to Remove Small Steel Fines – Improves Quality & Reduces Operating Costs

The Most Advanced, Automatic, Non-Disposable Liquid Filtration System



Steel Mill



ZGF Maggie MG1200 rated at 125 gpm

Customer Challenge

A coater of automotive grade steel coils uses two distinct cleaning operations to remove mill oil and fine metal particulates from the sheet prior to galvanizing. The first cleaning process utilizes a set of rotating brushes to physically remove contaminants with a spray application of a mild alkaline cleaner at 180°F. The second step in their cleaning process is a spray application of a highly caustic solution directly to the surface of the steel strip.

The oil and small steel particles washed from the surface of the steel would rapidly accumulate in the baths. Ordinary bag filters were not capable of removing the small steel fines from the solutions, and there were no means of removing excess oil beyond overflow to allow skimming. As a result of these practices, the customer experienced an increase in cleaner chemical usage, constant re-treatment of the steel coils, and an increase in hazardous waste generation due to the use of a highly caustic cleaner

ZGF Solution

ZGF installed a Maggie MG1200 automatic, in-line magnetic separator. The system has a design capacity of 125 gpm. The Maggie system is installed as a partial flow, side-stream circulation loop. The system is designed to circulate dirty solution through Maggie even when the line is not processing steel.

Results

- ❖ **Consistently and effectively removed small steel fines from the process.**
- ❖ Reduced labor and maintenance by minimizing the need to changeout bag filters
- ❖ **Improved first time quality by significantly reducing the need to re-treat coils by 12%.**
- ❖ Improved environmental footprint and saved money by reducing the disposal of strip cleaning chemicals and bag filters
- ❖ Reduced the consumption and expense of strip cleaning chemicals
- ❖ **\$140,000 annual coil re-treat savings directly attributed to the implementation of the ZGF Maggie**



Maggie captures most particles 5 micron and larger, as well as sub-miron particles. SD+ recovers and returns the valuable solution to the process.