

Optimizing Energy & Efficiency with GORE® LOW DRAG Filter Bags

Collaborating with a steel plant in the United States to cut costs, reduce emissions, and drive long-term efficiency.



The Challenge

Energy costs are a major challenge in steel production. A steel plant in the United States wanted to preserve its 60-year tradition of producing high-quality products at the lowest possible cost while maintaining environmental responsibility.

We had precisely the solution.



Existing Filtration System

The plant used 3,600 woven polyester filter bags in its electric arc furnace (EAF) ventilation system. However, this system required **three high-power fans**, each running with dampers at 60% open, resulting in **high daily energy costs**.



Opportunity & The Solution

With the existing filter bags reaching the end of their lifecycle, the plant had an opportunity to rethink filtration for energy efficiency and cost savings. Gore's team **installed 3,600 GORE® LOW DRAG Filter Bags**, replacing the previous bags with no system modifications. Developed through decades of expertise, our bags allow for significantly lower dP, resulting in **greater airflow and less dust cake build-up**.



Immediate Results

The collaborative efforts between the plant's engineers and Gore's filtration experts delivered immediate impact:

- Filter resistance dropped from **2.8" w.g./fpm to 2.0" w.g./fpm**
- Baghouse differential pressure drop decreased from **10.5" to 4" (w.g.)**
- Fan **volume potential increased**



Max Efficiency & Energy Savings

Only three weeks after installation, a bigger opportunity was realized — **optimizing fan usage**. To maintain sufficient airflow, the plant successfully turned off one fan and ran the remaining dampers at 100%. This shared commitment paid off: the plant **saved over \$400,000 a year** in energy bills, reduced their environmental impact, and simplified maintenance.



Improved System Performance

Even with only two fans running, the total **system volume increased from 930,000 to 950,000 ACFM**. The consistently low pressure drop has made flow rates more consistent and improved EAF draft control. This setup also allows one fan to be kept offline for maintenance or as a spare.



Future Improvements

With collaboration at the core, this successful installation is **driving long-term industry progress**. The plant is now investigating high-efficiency fan wheels to optimize energy use and draft control even further. The expected filter bag life is more than 6 years.



Unexpected Benefits

The efforts of our dedicated team solved the immediate challenge — and delivered unexpected benefits. The filter bags' improved dust cake release allowed for **enhanced capture of particulates in the PM10 and PM2.5 size ranges**, resulting in the **lowest emissions** results in this long-running steel plant's history.



Collaboration That Counts

Smart solutions. Trusted partnerships. Proven results. GORE® LOW DRAG Filter Bags, **seamlessly integrated** into the steel plant's system, **lowered both energy costs and environmental impact** while **optimizing performance** — made possible by our commitment to meeting and exceeding our customers' expectations.



The Gore Metals Team.

