

**Process Technologies**  
Refinery Filtration Solutions



# Refinery cuts operation costs with ProGuard FR backflushing filters

**A LEADING REFINERY IN THE CZECH REPUBLIC HAS IMPROVED COST-EFFICIENCIES WITH PROGUARD FR BACKFLUSHING FILTERS FROM FILTRATION GROUP**

When a refinery operates around the clock, processing thousands of tons of crude oil a day, reliable filtration is essential to maximize contaminant removal, minimize downtime, and reduce operation and maintenance costs. That's why a leading refinery in the Czech Republic turned to Filtration Group's ProGuard FR backflushing filter for the solution.

## THE CHALLENGE

The refinery had a high flow cartridge filter system installed on its gas oil hydrocracker to remove contaminants. However, due to the content of coke, asphaltenes and polymers in the vacuum gas oil, the disposable 25 micron filter cartridges needed to be replaced frequently, which exceeded the company's budget for cartridges.

The refinery sought to reduce the high cost of cartridge filter replacements. At the same time, the cost-effective solution would need to maximize contaminant removal while protecting the expensive catalyst reactors downstream of the filter system.

## THE SOLUTION

The refinery initially chose to use cartridges with a larger micron retention. However, this resulted in an increased pressure drop to the reactor bed.

After some investigation, the refinery opted to try a backflushing filter system from Filtration Group. In order for the new filter to be successful, it would need to:

- a) Run at least 90 minutes between backwashes.
- b) Consume no more than 5 m<sup>3</sup> of backwash fluid per day.

Based on the refinery's process conditions, we recommended a ProGuard FR backflushing filter.

The ProGuard FR Series automatic backflushing filter is specifically designed for the robust requirements of refinery feed streams. The filter minimizes the backflush volumes while effectively removing contaminants. Automatic self-cleaning of the filter elements improves filtration efficiency, with trapped contaminants discharged from the system via the flush pipe. Most importantly, operation isn't interrupted during the cleaning cycle, meaning uptime is maximized.

## THE RESULT

After installation, ProGuard FR system performed with repeated run times of more than 2.5 hours between backflushes and only 2 m<sup>3</sup> of backflush fluid consumption. This easily meets the refinery's process requirements.

Reducing operating costs and minimizing downtime is essential to optimizing business performance. With the ProGuard FR backflushing filter system, the refinery is now able to operate within a lower operations and maintenance budget, while continuing to protect the catalyst reactors downstream of the filter system.