

CASE STUDY

Mining & Mineral Processing

Direct Drive Conversion for Vacuum Filtration System to Reduce Maintenance Costs and Increase Up-time

CHALLENGE

A mine in the southeast USA was operating multiple Disc Vacuum Filters (DVF's) for liquid-solid separation, driven by Bull and Worm gear drive configurations.

This plant had misalignment problems that led to the Bull gears wearing rapidly and, subsequently, the need for multiple Bull gear replacements each year on each filtration machine. Frequent Bull gear replacements meant higher-than-needed maintenance costs and increased downtime. Not only were these high-cost spares – at up to \$25K each to replace – but they were also long lead-time items.

The plant reached out to Micronics, now a part of Cleanova, to find a solution that would address the misalignment issues, would keep their Vacuum Filtration Systems running more consistently, and would minimize the high maintenance costs associated with repeated Bull gear replacements.

SOLUTION

While alignment issues with Bull and worm gears are not uncommon, they are difficult and time-consuming to fix. Bull and worm gears – and even chain drives – are somewhat outdated. Our standard offerings for all of our new Vacuum Filters are direct drives because they are simpler and more reliable for customers to operate.

After a careful on-site analysis by our experienced Engineered Services group, we identified that a custom conversion was the recommended solution, replacing the old Bull gear drive on the filtration equipment with a new Planetary gear direct drive system.

A new Drive shaft with matching bearing & riser and a torque arm pin were all that our team needed to get the new direct drive on and running. This modern, Planetary gear-driven direct-drive design is made to have lower maintenance requirements than with traditional drive configurations, while also being more energy-efficient.

For this Direct Drive Conversion, the scope included:

- Bolt-on drive shaft
- Bearing and framework
- Guarding
- Torque arm and framework
- Shaft-mounted gearbox and motor

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Before Photos



Legacy Work/Wheel
Drive Configuration



Extremely Worn
Drive Teeth

After Photos



Bolt-on Drive Shaft



Completed Direct Drive

At Cleanova | Micronics, we are always looking for ways to help clients increase the efficiency and reliability of their liquid-solid separation operations. We are proud to deliver advanced filtration solutions that improve efficiencies, reduce costs, and promote sustainability for a cleaner tomorrow. You can trust our team with Complete Vacuum Filtration Systems, Installation, and Field Services, whether for your Horizontal Belt, Rotary Drum, or Disc-type Vacuum Filters.

Contact Us and let us know how we can assist you with your vacuum filtration equipment, whether our NFM® brand or any other OEM brand of vacuum filters.