

**AUTOMOTIVE**

# ROBUST FILTER CLEANING MACHINE

HARSH  
ENVIRONMENTSMOOTH  
MOTION

MULTI-AXIS



FLEXIBILITY

## How automation is saving the environment - one diesel truck at a time!

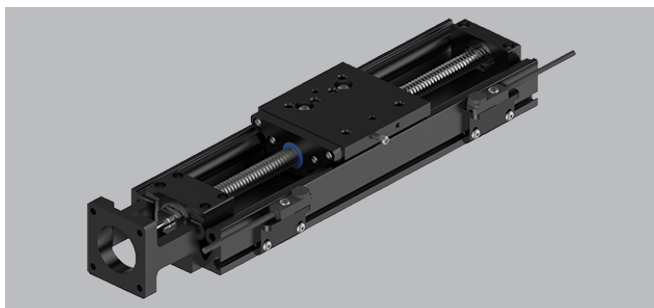
For decades, the EPA has mandated that every diesel truck in America have a Diesel Particle Filter (DPF) to catch the huge plumes of black smoke emanating from the exhaust system. This smoke is not only harmful to our everyday environment but is also a major pollutant to the world's atmosphere.

The problem with DPFs is that while they are good at catching smoke and soot, they shut down the truck's engine when they become full. Thus, whether you are an independent trucker or own a fleet of trucks, it is incredibly important to keep tabs on the filters and clean or replace them before they halt your trucking operations.

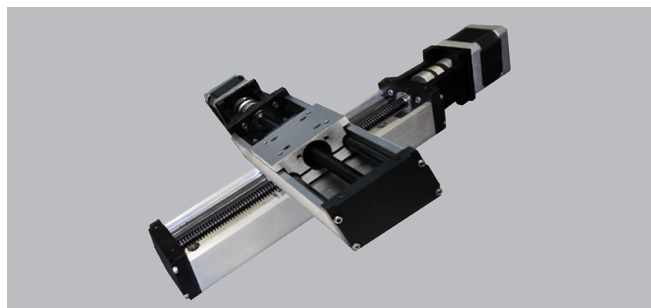
**CHALLENGE**

The traditional way to clean DPFs has always been to bring them to a facility that bakes them at 1150°F for 12 hours. The problem however, is they can only be cleaned 3-4 times before the high heat cracks and breaks apart the ceramic parts of the filter. When this happens, the filter must be replaced at a hefty cost of \$3-7K.

After 15 years of this same dilemma, EcoClean Advantage set out to develop a new and better way to clean the filters; one that was fast and would not destroy them in the process. Their idea was to design a machine that could inject a powerful stream of water perpendicular to the surface of the filter, and then move it in a back-and-forth motion, to ensure all the filter's deep channels and pockets got cleaned. They knew that if the water was not injected perpendicular to the filter's surface, it would simply spew off the filter. However, finding a mechanism with this flexibility, while also being rugged and durable, was not an easy endeavor. While there were many options to choose from, many were too expensive and had added features that were unnecessary and unusable for this process. Other low-cost solutions simply could not hold up the under intense use and in dirty conditions that EcoClean required.



ECO60™ Linear Actuator



Multi-axis ECO60™ Assembly

## SOLUTION

To develop their new cleaning machine, EcoClean Advantage needed a solution that was not too expensive, but was high quality and robust so it would work well in an extremely harsh, dirty and wet environment. The device needed to provide maximum flexibility so they could inject the water precisely perpendicular to the filter and then move the hose back and forth around the filter for a deep clean.

After looking at all other solutions on the market, EcoClean Advantage chose the Bishop-Wisecarver ECO60™ linear actuator. The flexibility of this device allowed the hose to be positioned exactly where EcoClean needed it, and it allowed a smooth back and forth motion. It also had a strong, rugged design that was perfect for withstanding the rough handling and dirty conditions that the cleaning device would be operating in.

EcoClean installed two of the Bishop-Wisecarver devices in each of its cleaning machines and their business success has been remarkable.

## QUANTIFIABLE RESULTS

EcoClean Advantage has had their cleaning machines running for more than a year and the results have been spectacular. In fact, the cleaning machine has been so successful that EcoClean Advantage has expanded its business to not only develop the machines, but also offer the cleaning services. The company has already opened cleaning facilities in Orlando and Indianapolis and plans to expand even more in the future. In less than an hour, trucks can have their filter cleaned, keeping their vehicle running smoothly and minimizing any downtime due to dirty filters.

## CHALLENGE SOLVED

By leveraging linear motion technology from Bishop-Wisecarver, EcoClean Advantage has developed a new generation of cleaning machines that enables the filters to be cleaned as often as the truck driver or fleet owner wishes. With a process so unique it has several pending patents, these machines can clean in as little as an hour and eliminate the need to replace the filters every 3-4 cleanings. This enables fleet companies to save hundreds of thousands of dollars in DPF cleaning fuel costs and uptime per year! It's also been proven that clean filters have a positive impact on fuel mileage, increasing fuel economy by nearly 5 percent.

“Displacing an established 15-year-old method of cleaning diesel filters was no easy task. We had to try many linear motion solutions on the market, from vendors around the world, and Bishop-Wisecarver delivered the best combination of quality and cost compared to everyone else. Their products work the way they are supposed to, time and time again, while also delivering the quality, durability and robustness we needed.”

- MANAGING DIRECTOR  
AND CTO AT ECOCLEAN  
ADVANTAGE