TOTAL FILTRATION SERVICES

Improving CNC Machine Filtration for International Technology Company

Customer Case Study

PROFILE

The customer in this case study is an international technology company that designs and manufactures connectivity and sensor products for a variety of industries including (but not limited to): automotive, aerospace, consumer electronics, energy, and medical. As Tier 1 manufacturer, they supply innovative products to some of the largest OEMs in the world.

CHALLENGE

The manufacturing plant in North Carolina had partnered with an integrator to re-order their existing filters. The customer was also ordering filters from an MRO industrial supplier. While this is a common buying setup for large manufacturing plants, it often results in filters being commoditized, as typical suppliers are focused on re-ordering existing parts, not recommending alternative solutions.

The customer was interested in partnering with a filtration supplier and invited Total Filtration Services to perform a site survey. A site survey allows a supplier to walk the plant floor, document the filters used throughout the facility, and talk to maintenance, engineering, and plant management to learn about the customer's processes and filtration needs. TFS is uniquely qualified to perform thorough site surveys, due to having over 30 years of experience in serving the filtration needs of customers in a wide variety of industries.

During the site survey, TFS discovered 6 CNC machines, making components. Each machine was using 10” housings for stringwound liquid cartridge filters. A string wound filter cartridge is a type of depth cartridge filter that is made by weaving yarn around a core. In this application, the stringwound filters were tasked with catching particulates from the water stream and keeping the nozzles from getting clogged up.

During a discussion about this application, the customer shared they were having to change these filters twice per week and was looking for a way to extend the life of their cartridges.

TFS recognized the stringwound cartridges would open and close while they fluctuate and were not tightly bound. While a good solution for other applications, TFS knew stringwound cartridges were not a good fit for this application due to the fluctuating flow rates causing the filter to let in more particulates and load-up too quickly.

THE TFS SOLUTION

TFS proposed a trial using a meltblown cartridge, as it loads from the core-out, and would allow the customer to reduce their change-outs due to the filter not loading up as quickly as the stringwounds. It would also provide better filtration, as fewer particulates would make their way into the cabinet where the nozzles are located.

TFS provided enough meltblown filters to perform the trial on two of the customer’s CNC machines. Within 2 weeks, the customer had reported that

the meltblown had already significantly outlasted the stringwound. The stringwound was loading up once or twice per week; whereas the meltblown cartridge lasted up to 4 weeks. The meltblown also did a far better job catching particulates.

RESULTS

On the very first visit, TFS recognized an opportunity to improve the customer's filtration for a critical process in their facility.

- After one month, the recommended meltblown filters were finally ready for a change, while the stringwound cartridges were changed out between 4 and 8 times!
- This provided significant labor savings, as the maintenance staff had previously spent about 4 hours per month changing-out these filters. The customer also cut their filter costs in half, due to the extended life of the meltblown cartridges.
- This solution has been in place for 3 years and the customer continues to use these filters, which are purchased by their integrator and supplied by TFS, who now supplies over 70% of the filters for the plant, including facility air and hydraulic filters.