

Dust Collection: Plastics

Customized Solution Boosts Plastic Fabricator's Bottom Line



Located in the foothills of Vermont's Green Mountains, K&E Plastics has been fabricating custom plastic products for a wide range of industries since 1965. In addition to machining, K&E provides a variety of services including deburring, grinding, painting, tumbling and engraving.

Focus:

K&E Plastics

Challenge:

Design a dust collection system to meet the needs of expanded operations

Solution:

SFC Series
DustHog® Collector

Impact:

- Increased profitability
- Reduced machining cycle time by 66%
- Increased cleaning efficiency
- Energy cost savings

Challenge

After increasing its number of CNC machines, it was clear K&E Plastics' existing dust collectors were no longer sufficient. The new machines required 18,000 cubic feet per minute (CFM) of air volume for proper ventilation. Their existing dust collection system was only rated for 3,000 CFM.

The existing undersized dust collection system was also adding unnecessary time to the machining process. After each piece was machined, workers had to spend between 30 and 45 seconds cleaning the work surface before the next part could be loaded. With each machine performing 1,000 cycles per day, even just a few wasted seconds could significantly hurt the plant's productivity.

To complicate matters, the layout of K&E's facility presented space restrictions that would impact the size and location of a new dust collector. The options considered included a cyclone with an after-filter. However, cyclone collectors require more space than K&E had available.

After extensive research, including a survey of their shop personnel, K&E executives began searching for a dust collection system that would accomplish the following:

- Provide sufficient CFM capabilities to allow the equipment and operators to function at peak efficiency
- Handle the varying shapes and sizes of dust particles created in plastics machining
- Reduce air noise to below 80 db
- Allow K&E to return warm, clean air into the facility to save on energy costs
- Reduce time and effort associated with the removal of collected dust

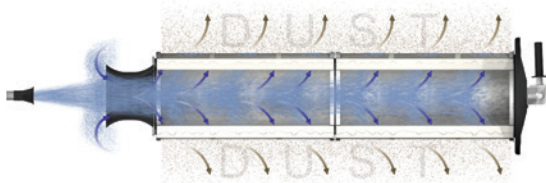
Solution

After an extensive evaluation process, K&E chose to work with UAS, now Parker Hannifin. The Parker representative and engineers worked closely to customize a dust collection system that provided the efficiencies and performance that K&E required within its space limitations.

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To handle the wide range of particle shapes and sizes, Parker Hannifin developed a modified version of the DustHog SFC downward flow cartridge dust collection system. By adding an extended dirty air plenum, it provides a single inlet to the collector and allows the cartridges to accept a wide range of particle shapes and sizes without the added space and horsepower usually required. This customized unit also provided all the advantages of the SFC including patented pulse cleaning technology, greater air capacity and quick and easy maintenance.

Pulse Blast



The customized SFC dust collector from Parker Hannifin was the only product available that met all of K&E's criteria. In a head-to-head comparison with competitive equipment, Parker also came out on top in the following areas:

- Responsiveness of Parker representative and the engineers
- Lower maintenance costs
- Availability of aftermarket replacement filters
- Better warranty
- More competitive cost
- Smaller footprint of unit

Impact

Eric Broderson, general manager of K&E Plastics, is very pleased to have found a dust collection system that meets all the criteria. Operators report a cleaner work environment, air noise has decreased and the company is saving energy costs by returning warm, clean air into the facility.

The DustHog dust collector has also had a measurable impact on the plant's profitability. The 30 to 45 seconds workers used to spend cleaning their work area between parts has decreased to 10 seconds.



Parker Hannifin custom designed an extended dirty air plenum to collect particles in all shapes and sizes.

"When you figure that we're saving 20 seconds from each cycle time, times 12 machines and 1,000 cycles per day, the system's expense is more than made up for an increase in profitability," said Broderson. "The gains in profitability possible with our new DustHog system, combined with the improvements it makes to the overall work environment, made this a very easy sell to our board of directors."

While production has gone up, maintenance costs have gone down. The SFC's "QuickSeal" release door and horizontal filter tracks allow for fast cartridge filter removal. The design of the SFC also allows for easier unloading of collected dust from the 55-gallon storage drums. While this process once took about 3 1/2 hours, it now takes less than 15 minutes.



A DustHog SFC 48-4 with an air distribution module and ground mount blower collects plastic dust.