

CASE STUDY

Ultrafiltration System Pays For Itself In Less Than 6 Months

Eaton Corporation's Fluid Power Division, Marshall, Michigan, manufactures brake components for the automotive industry. During the course of a week, they were dumping 3600 gallons of washwater from their spray washers. This was becoming very costly, and they were dumping gallons of cleaner that could be reused. They began to look for an alternative method to the disposal.



The manufacturing process consists of machining the brake components, heat treating the parts and oil quenching. During the oil quenching stage, the parts collect oil that needs to be removed before the final phosphatizing phase, so the parts are put through a spray washer system. Eaton has three 1200 gallon capacity spray washers that used 2-1/2 drums of cleaner a day. Cleaner costs are approximately \$300,000 per year. The used washwater consisted of free and chemically emulsified oils in the washwaters.

To eliminate the large volume of waste disposal, a PRAB Ultrafiltration system was installed. After installation, Eaton's cleaning chemical usage was reduced to -1/4 drums a week, a savings of \$196,000 the first year! There is such a tremendous cost savings that the system payback was realized after the first five months.

In addition to the reduction in chemical usage, the brake parts are cleaner because there is less oil in the washwater. They have a cleaner phosphatizing process since there is less carryover of oil by the parts and reduced parts rejection after the phosphatizing process. An unexpected bonus is the drop in operating temperature of the washwater. It went from 180° F to 150° F, a reduction in energy usage of 20%. The cleaner pH went from 11.5 to 9.5.

Another added bonus has been the reduced amount of fluid to be processed by the waste treatment system. By dumping less washwater into the waste treatment system, Eaton has been able to process a higher flow rate through the system.

About PRAB

PRAB is a leading engineer and manufacturer of conveyors, chip and fluid management systems, and industrial water and wastewater treatment equipment. Our customized solutions automate metal handling, reduce labor costs, reclaim and recycle expensive cutting fluids/coolants and maximize return on recycling metals. With our expertise, honed by more than 4,500 installations for the world's leading OEMs and suppliers within the automotive, aerospace, medical, electronics, defense, off-road and energy markets. For more information about PRAB, visit prab.com.

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