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Lower Labor Costs, Eliminate Machine Downtime and Maximize Coolant Life: A Guide to Portable Sump Cleaners

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Eriez Portable Sump Sleaner

Removing solids from coolant in the machining process is critical to achieving better fluid performance and longevity, air quality, bacterial resistance, corrosion resistance, tool life and parts finish. Advanced portable sump cleaners can provide the solution.

Maintaining clean fluid that is free of weak and fine particulates should be standard operating procedure at every machine shop, whether the final products are simple items such as bale wires, or complex objects like medical devices or components for aerospace applications.

Efficient cleaning of machine tool sumps will optimize machine performance while also extending coolant life. Just like tooling and inspection, fluid recycling practices ultimately affect a shop's bottom line.

Rising costs for the purchase, use and disposal of coolant make extending the life of coolant particularly important for protecting profitability. Traditional methods used to dispose of fine particulates, such as using a Shop-Vac or shovel and rake, are time-consuming and outdated. Upgrading to a simple sump cleaner delivers an excellent ROI for any machine shop, regardless of size.

Portable sump cleaners provide a cost-effective approach to saving time, material and money. With the efficiency of a portable sump cleaner, a machine can be cleaned quickly with minimal labor and little to no downtime.

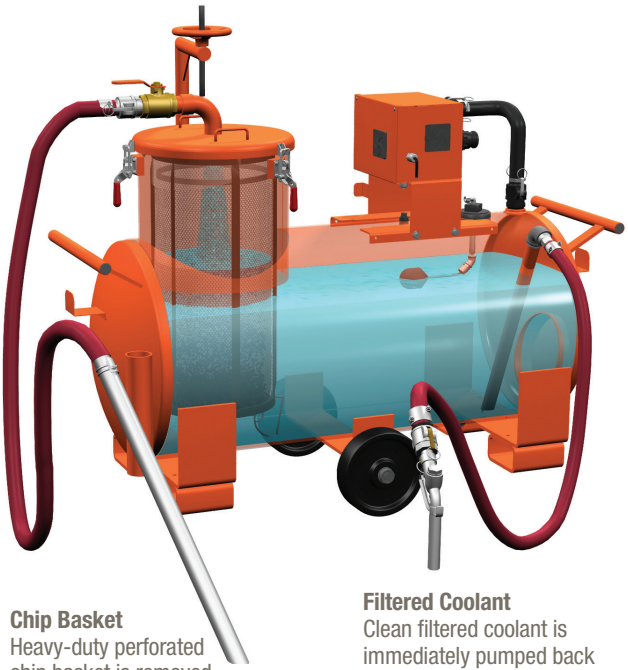
The Importance and Benefits of Clean Coolant

Dirty coolant can significantly shorten machine life. Saw and tool grinding, for example, generates a large amount of very small, abrasive particles. These particles get into the coolant and are then sprayed all over, getting into controls, cylinders, rods and bearings. When this happens, expect increased wear and reduced quality.

While many machines have a system to remove most of the chips, smaller fines are inevitably left behind to settle in the tank. These leftover fines often form smelly, greasy sludge piles on the bottom of the tank because the residue is full of anaerobic bacteria and tramp oil.

So, what can be done to the coolant or added to the coolant to penetrate the sludge and kill the bacteria? Unfortunately, the answer is nothing. Coolant must be physically removed regularly. Using a sump cleaner, a CNC machine tool sump with 50 gallons of coolant and 20 pounds of sludge can be completely cleaned in just 10 to 15 minutes, with the filtered coolant returned to the sump for re-use.

Dirty Coolant
Powerful suction removes heavy solids, chips and sludge from any machine tool sump at a rate up to 100 GPM (378 LPM)



Chip Basket
Heavy-duty perforated chip basket is removed via crane. Various basket liners can further filter coolants to 20 microns

Filtered Coolant
Clean filtered coolant is immediately pumped back into the sump

Eriez Sump Cleaner Operation

Eriez LP Gas Sump Cleaner

Simplified Operation and Easy Maintenance

A sump cleaner is a portable and powerful filter. In the process of cleaning the machine, the sump cleaner rapidly removes the fluid, sludge and chips from the machine sump. The sump cleaner filters the sludge and chips from the fluid through a reusable integral filter liner, and either returns the filtered fluid to the sump or transports the fluid to another recycling system. Many portable sump cleaners generate up to 100 gallons per minute of suction, which is powerful enough to eliminate sludge and chips through a 2" diameter hose.

Common polypropylene sleeve liners filter to a nominal 50 microns. If finer filtration is required, such as is the case in certain grinding applications, then a single-use paper filter sleeve can be inserted into the chip basket for a nominal filtration of 20 microns.

Sump cleaners are equipped with a high-level float switch to turn off the pump to prevent overfilling. When the sump cleaner is full, the operator closes the ball valve, places the hose on the discharge port and turns the switch to the discharge ‘on’ position. The operator then uses the dispensing nozzle to return clean, filtered fluid to the machine sump.

The last step is emptying the solid material from the sump cleaner basket. The operator unplugs the unit, loosens the handles on the basket lid and removes the lid. The basket is then lifted out to dispose of the waste.

Because a portable sump cleaner makes the job of cleaning sumps easier, maintenance staff are more likely to clean the sumps regularly, resulting in less build-up of swarf and scum on the bottom of sumps. In turn, this eliminates the home and breeding ground for bacteria.

Sump Cleaner Proves Valuable for Automotive Parts Manufacturer

The efficiency and savings from using a sump cleaner were paramount at U.S. Tsubaki Automotive LLC, based in Chicopee, Massachusetts. U.S. Tsubaki is known for producing precision power transmission parts for some of the best-known OEMs in the automotive industry worldwide.

The facility’s nine production lines, each with three machining stations to make tensioners, play a vital role in the automotive chain-drive system. The 27 machines need continual cutting oil recycling to keep out contaminants and fine particulates to satisfy the automakers’ demands for higher surface finish and closer parts tolerances.

The job of cleaning out the machines’ sumps originally fell strictly to manual labor. Each machine has three separate tanks, and it took eight to 11 hours to clean them out. Workers

Eriez Electric Sump Cleaner

Eriez Air Venturi Sump Cleaner

Eriez 50 Gallon (189 L) Sump Cleaner

would use an air pump for the liquid, then shovel and scoop out the chips and fines by hand, and finally wipe out the tanks with rags.

The tanks on each machine vary in capacity, ranging from 30 to 80 gallons. With 27 machines and three tanks per machine, crews were disposing of almost 4,500 gallons of cutting oil by hand per change-out.

As part of a continuous improvement initiative, the company purchased an Eriez portable sump cleaner featuring a single compartment with 275-gallon (1,000 liters) capacity and center-mounted, high impact, ball bearing wheels for maneuverability and low rolling resistance.

With their sump cleaner, it now takes U.S. Tsubaki two hours to do the complete job, whereas it used to take 8 to 11 hours per machine, according to the company. Filtered oil is reused at least once over, which saves 50 percent on oil consumption. The change-outs are done three to four times per year on seven lines with three machines each.

The company reduced costs by almost $70,000 per year in cutting oil alone. Add in labor savings and reduction in downtime, and the total payback is over $150,000 per year.

A Wide Range of Portable Sump Cleaners

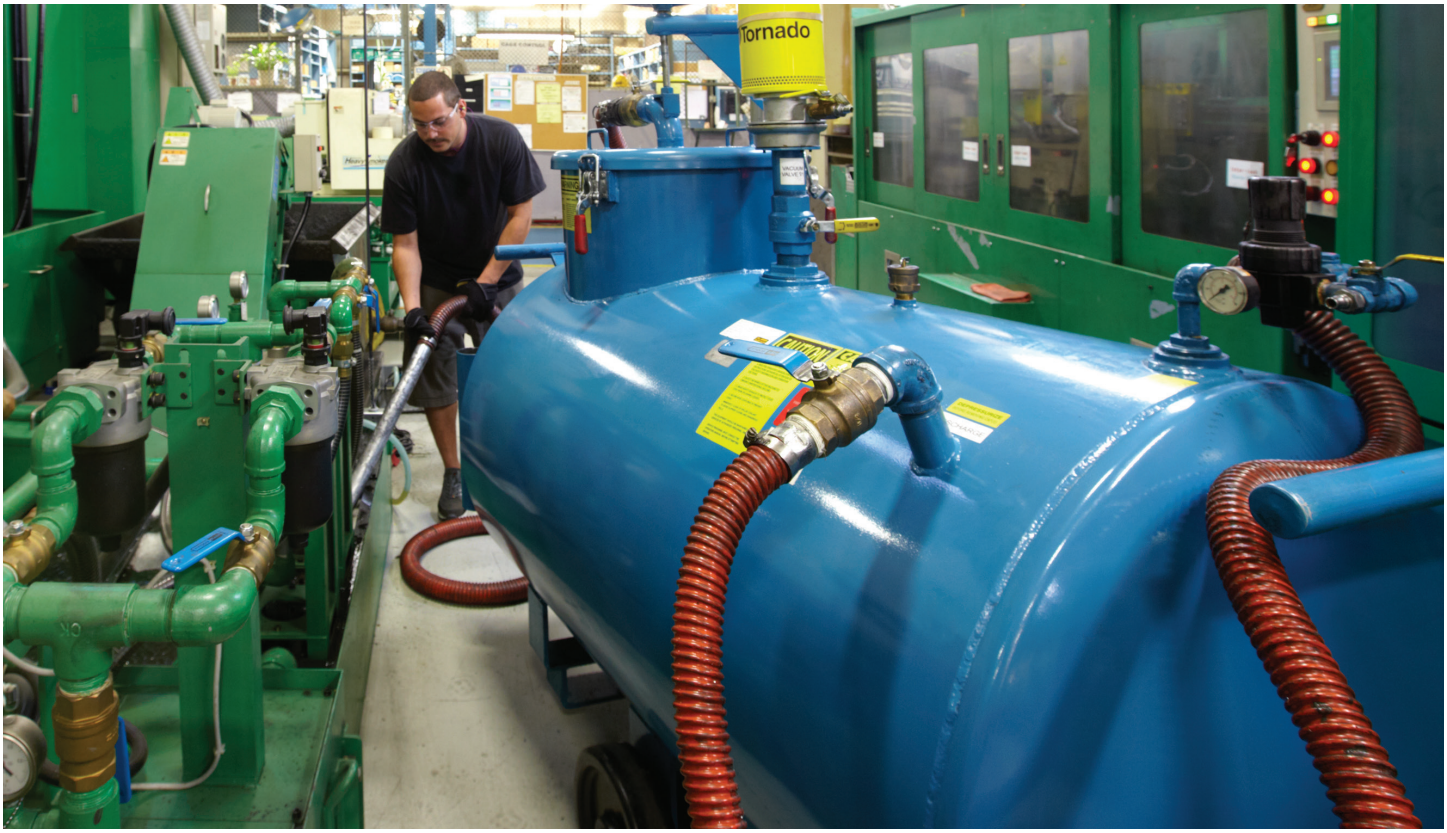
Various portable sump cleaner models allow shops to select the suction strength and filtration capacity needed to suit specific needs. Today's sump cleaners are heavy-duty robust pieces of equipment engineered to last many years with minimal maintenance.

Sump cleaners from manufacturers such as Eriez come in assorted sizes to accommodate volumes from 50 to 1,000 gallons and are powered by 120-volt electric, three-phase electric, LP gas or air venturi. Customers can choose from single tank or twin tank models. Units can also be built for mounting on industrial trucks, heavy-duty tow packages or pallet-mounted to fulfill unique needs. Units with continuous discharge can also be used for doing quick cleanouts without starving the sump of coolant, allowing for even less machine downtime.

Summary

The economic benefits of utilizing portable sump cleaners to recycle metalworking coolant are substantial. The larger the shop, the greater the savings. Each time the coolant is re-used, money is saved through decreased coolant purchases and disposals.

Portable sump cleaners offer thorough cleaning and the ability to reduce job time, material and money. Machines are cleaned faster with lower labor costs and little or no machine downtime. Filtering coolant instead of replacing it maximizes coolant performance. A sump cleaner reduces labor and the downtime required to clean the machine, typically from several hours down to about 15-30 minutes.



About Eriez®

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