



Metalworking

How High-Quality Metalworking Fluids Pump Up Machine Shop Performance

James Langford | Dec 17, 2024

Using bargain-basement metalworking fluids on state-of-the-art machining equipment is a bit like buying old, bias ply tires from a salvage yard for a new Ferrari.

Sure, the initial price tag is lower (on something that was a far smaller investment to begin with), but they'll keep your big-money purchase from delivering the performance you paid for.

That's the analogy Dale Zimmerman, regional sales manager for Master Fluid Solutions, uses to demonstrate the value of high-quality metalworking fluids to customers.

"When you have a new machine with high-pressure pumps, chillers, through-the-tool cooling and all the other capabilities that have been developed, you have to have a fluid that's capable of handling all those things as well," he says. Otherwise, "you're limiting the capabilities that you spent money to get. Because you don't have a fluid that's formulated to stand up to these challenges, you end up running your machine at less than optimum parameters."

A prime example of the drawbacks is foaming, which can impede machining operations: "If you put a fluid developed in 2010 that was held to the design characteristics of that age—when machines were capable of 80 pounds per square inch of pressure—into a 2024 machine capable of 1,000 psi, then it's likely going to foam like crazy," Zimmerman explains. Newer products such as Trim® MicroSol 692XT are formulated to excel in such environments.

While the latest innovations in metalworking fluids are designed to achieve maximum metal removal across a range of alloys and operations, it can be all too easy for customers to focus solely on price.

That's especially true since manufacturers and machine shops that buy hundreds of different cutting tools may use only one metalworking fluid, which makes its impact on the bottom line far easier to

spot—and a far more attractive target for cost-cutting.

Machine shops and manufacturers that overcome the temptation to buy the lowest-priced fluid that can handle operational basics, however, can achieve much bigger financial benefits.

High-quality fluids such as those in Master Fluid Solutions' signature **TRIM HyperSol 888NXT** can help users not only optimize machine performance but also prolong tool life and reduce production time.

Made to Machine Specialty Metals

Formulated to deliver high performance in advanced aerospace materials such as titanium, high nickel alloys, stainless steels and Inconel, HyperSol 888NXT pulls off the rare feat of improving both lubricity and cooling capability.

"We've seen certain applications in exotic materials like Inconel and 316 stainless steel where users can achieve three to five times their previous tool life simply by changing from an older-technology fluid to this product," Zimmerman explains.

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An alloy prized in production of aerospace components as well as medical implants because of its durability and resistance to high temperatures and corrosion, Inconel is notoriously difficult to machine.

"We've actually had some customers who have put HyperSol 888NXT in, then called and said, 'I don't know what's in this stuff, but I need you to send me two drums as soon as possible because for every minute that I'm not using it, it's costing me extra money,'" he says.

Reducing Environmental Impact

The first patented neo-synthetic coolant from Master Fluid Solutions, HyperSol was certified by the U.S. Department of Agriculture as biobased, meaning it's made largely of plant-based materials, and added to the agency's **BioPreferred Program**.

Manufacturing and use of biobased products significantly lowers greenhouse gases, helping companies to reduce carbon emissions and shrink their environmental footprint.

Since newer high-quality metalworking fluids like HyperSol 888NXT have fewer volatile organic compounds, or VOCs, they "actually create a better work environment for the operators in a manufacturing facility," Zimmerman explains.

Read More: *Don't Cut Costs Here: Spending More on Metalworking Fluids Can Boost Machine Shop Profits*

Another plus is that disposing of such metalworking fluids is less costly.

"First, the product is lasting longer, so you're disposing of it less frequently," Zimmerman says. "Then, when you do have to dispose of it, it's going to cost less because it doesn't contain some of the elements in older products that disposal companies would charge extra for because breaking them down requires more steps."

Banishing Bad Smells

The biobased formula of HyperSol 888NXT also keeps it smelling better longer, unlike older metalworking fluids that can quickly develop unpleasant odors as the pH level, a measure of acidity, drops.

Workers greeted by the foul aromas when they returned from a weekend off have dubbed them “Monday morning stink,” and they don’t make recruiting new staff any easier—a particular problem for manufacturers and machine shops grappling with a widening labor shortage.

“If you can have a product that buffers that pH to a consistent level, keeping odor away longer, then you’re winning,” Zimmerman says.

How can higher-quality metalworking fluids help your shop? Tell us in the comments below.

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