CASE STUDY

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Enhanced sustainability in precision machining

Application: ECOCOOL GLOBAL 1500
Location: United Kingdom

Customer

A precision machining company who operates in diverse sectors such as Oil & Gas, Energy, Rail, and Motorsport. Their work involves machining components from materials such as Inconel, Titanium, Aluminum, and copper-based alloys. Each job presents unique challenges where both client and customer prioritize environmentally conscious supply chain.

Challenge

The client faced pressure from customers to provide environmentally sustainable solutions however, their previous attempts with synthetic cutting fluids led to undesirable outcomes. These included poor tool-life performance, sticky deposits, and fluid discoloration, causing concerns for operators resulting in high coolant usage. Despite these challenges, the client often had to revert to traditional mineral oil-based cutting fluids.

Solution

To address these issues, the client adopted ECOCOOL GLOBAL 1500 cutting fluid which offers various benefits. It does not contain any mineral oils, making it an eco-friendly choice. Designed specifically for machining exotic alloys and steels, which meets the demands of the client's diverse material portfolio. The solution extended beyond cutting fluid - The client also incorporated the FUCHS PLANTO range for machine tools' hydraulic and slideway lubricants. These products were packaged in FUCHS' innovative 100% recyclable packaging, the FUCHS Lube Cube.

Advantages

- Mineral oil free
- Improved tool life
- Improved surface finish
- Improved machine cleanliness
- Reduced foaming
- Reduced concentration
- Reduced consumption
- Consistent concentration
- Sustainable option
- Cost savings

Results

The adoption of ECOCOOL GLOBAL 1500 yielded significant benefits. Its unique chemistry and carefully selected raw materials delivered high-performance tool life & surface finish. The customer was able to achieve tighter tolerances particularly on smaller components. Due to precise concentration control, the client no longer needed to adjust the product concentration excessively when machining challenging materials. This resulted in reduced foaming issues and contributed towards far cleaner machining areas. By embracing FUCHS sustainable cutting fluid solutions, the client not only met environmental goals but also enhanced their operational efficiency and customer satisfaction.

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Optimized, automated titanium machining

Application: ECOCOOL GLOBAL 2500
Location: United Kingdom

Customer

A prominent aerospace and defense component manufacturer, specializes in forging Titanium & Aluminum parts. Precision machining operations play a critical role in delivering high quality components.

Challenge

The customer encountered a persistent issue with excessive foaming while using a competitor's coolant. This foaming led to frequent machining & manufacturing stoppages, resulting in costly downtime. The situation was exacerbated by frustrated operators who had to clean up coolant spills on the shop floor. The customer's CNC machining center, equipped with robotic automation, could run unmanned for up to 12 hours. However, the foaming coolant cascaded out of the machine coolant sump, creating an unsafe environment for operators when they needed to intervene. Additionally, the high coolant concentration caused residue build-up around the machining center, affecting overall cleanliness.

Solution

ECOCOOL GLOBAL 2500, a heavy-duty water-miscible cutting and grinding fluid, was specifically designed for challenging aluminum applications however, its effectiveness extends to ferrous and other metal materials as well. It offers significantly improved foam control, eliminating production stoppages.

Advantages

- Improved machine cleanliness
- Improved sump life
- Reduced foaming
- Reduced downtime
- Reduced odor
- Reduced concentration: 13% to 8%
- Reduced consumption by 20%
- Best practice training
- Cost savings

Results

The absence of coolant foam-overs (No production stoppages due to foaming, resulting in uninterrupted machining) led to a 20% reduction in coolant consumption which translated to significant cost savings. Due to ECOCOOL GLOBAL 2500's high cutting performance the fluid concentration could be safely reduced from 13% to 8%. The machining areas became cleaner, allowing operators to see through the glass and monitor operations effectively. Operators appreciated the near-odorless, low-foaming coolant. FUCHS Smart Service educated the customer's production team on best practice coolant management practices. With proper management, the customer achieved a 12-month sump life or beyond. In summary, ECOCOOL GLOBAL 2500 transformed the machining process, ensuring safety, efficiency, and cost-effectiveness.

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