HOCUT® 4940 SHOWS MAJOR IMPROVEMENT: AEROSPACE CASE STUDY

The Unique Challenge

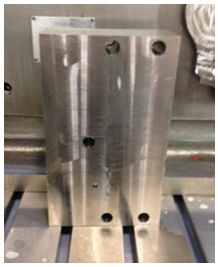
A leading engineering service provider specialising in the design and manufacture of solutions for many prestigious Aerospace OEMs and Tier I suppliers (e.g. Airbus, BAE Systems, Bombardier) was looking to improve operations. The company has five strategic business units supporting the Aerospace sector.

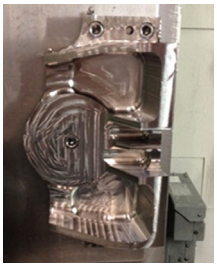
At one location, a relatively balanced mix of aluminium, nickel, and titanium alloys were normally machined. However, new contracts required undertaking more frequent and arduous titanium work. This resulted in machining and tooling difficulties, even at a 15% coolant concentration.

These difficulties were particularly severe in a plunge milling operation on a titanium block (pictured above). In order to fulfil their new contracts profitably, the company needed to make step-change improvements in their machining operations.

Their primary objectives were to reduce cycle times, increase feed rates, and reduce the number of tool changes per shift. They were losing an average of one hour of productivity for each roughing cycle.

This equated to 4 hours of lost machining time for each 24-hour period. Historically, there have been issues with corrosion on machine tool beds with seals and coatings breaking down. Coolant usage per machine tool was one drum of coolant per 2 weeks at an annual cost to the business of nearly 22,000 $US per machine tool.





The Houghton Approach

To overcome their difficulties, Houghton recommended HOCUT® 4940 coolant with its new, advanced lubricity package and excellent wetting properties. HOCUT® 4940 provides superior cutting performance and reduced tool wear enabling the customer to better execute titanium machining with both lower cost of operation and higher productivity.

Additionally, HOCUT® 4940's superior EHS profile minimises any potential health and environmental impacts so it can be used in all of the customer's global locations...Americas, Europe, and Asia including Japan.

A DMC 100H Machine 4 was chosen for the trial. The Hocut® 4940 concentration was set initially at 9% and then reduced to 7% as the anticipated performance benefits were achieved.

Once HOCUT® 4940 was introduced, there were a number of benefits achieved versus the incumbent coolant:

- Tool life increased by 150% from 20 minutes to 50 minutes
- Feed rates increased reducing machining cycle time per component by 1.5 hours yielding a 40% increase in productivity
- Coolant concentration of the working fluid was reduced to 7% versus the competitive fluid which was run at 15%
- Coolant usage reduced by 21 drums of concentrate per year

Hocut® 4940