



HOUGHTON™

Hocut 795B coolant is top performer in independent tool-life tests
25% increase in tool life achieved in titanium machining trials

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The Plant

A leading UK provider of forged and heat treated components for the aero-engine, airframe, flight control systems and landing gear markets.

The company decided to compare a number of coolants in machining tests milling titanium (Ti64) wing pylons for Bombardier aircraft.

A Wadkin CNC machine using carbide insert tooling was used for the tests. Mains water hardness is 190ppm and emulsion strength is 8%.

The company felt that the older technology boron amine type product in use did not provide sufficient tool or sump life and were looking to find the most cost effective option for titanium machining.

Mettis were also interested in Houghton products following the research published by AMRC where both companies have a working relationship in the AGO50B project.

Account Manager, Mark Fletcher says,

'Our customer recognised that little was known about the best coolant for titanium machining until results from the AMRC were published. Their in house trials yielded a very good result for Hocut 3450 but an outstanding result for Hocut 795B'

The Houghton solution

Trials were initially set up for three products: a local boron amine technology coolant, a leading aerospace competitor coolant and Hocut 3450. The latter two products were both high ester EP type products with a very high level of lubricity. A total of 6 milling tools were monitored for tool change frequency during the period of the trial.

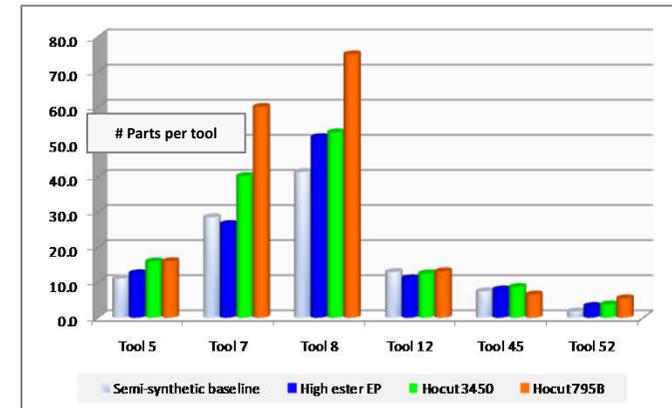
The plant Engineering Manager was also made aware of the results of the AMRC Coolant Characterisation Research Programme where tool-life testing has been carried out on twelve different types of coolant chemistry for titanium machining. Hocut 795 technology gave the best performance of all products used in these independent machine tool tests, indicating as much as three times the tool-life achievable in some cases.

On this evidence Houghton suggested that Hocut 795B should also be included in the trial as it would show impressive tool and sump life with a commercial advantage.

Trials were run over a 6 week period with tool change frequency being carefully monitored and the level of success measured by the parts per tool.

Benefits

- *Hocut 3450 and Hocut 795B outperformed both competitor products*
- *Hocut 795B tool life was significantly better for critical tools 5,7 and 8*
- *Overall Hocut 795B showed a 25% increase in tool life compared to the incumbent product*
- *Hocut 795B offers a commercial advantage in price per litre over high ester EP products for titanium machining*



The chart above shows tool-life results for all six milling cutters used to make the component

