

Aerospace

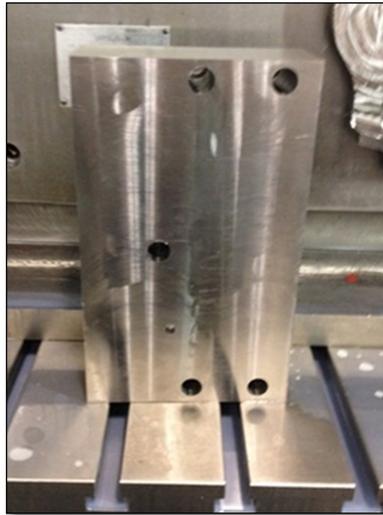
Case Study:

Hocut® 4940 shows major improvement for Titanium Components Manufacturer

The Unique Challenge

A leading engineering service provider specializing 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 5 strategic business units supporting the Aerospace sector.

At one location, a relatively balanced mix of aluminum, 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 fulfill 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 1 drum of coolant per 2 weeks at an annual cost to the business of nearly 22,000 \$US per machine tool.

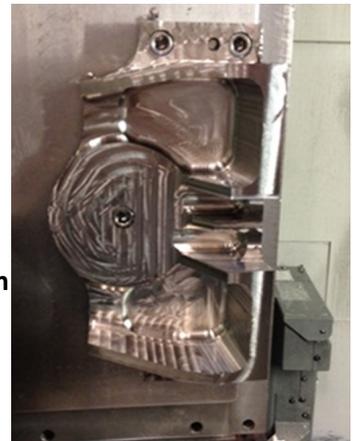
The Houghton Approach

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 minimizes 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.

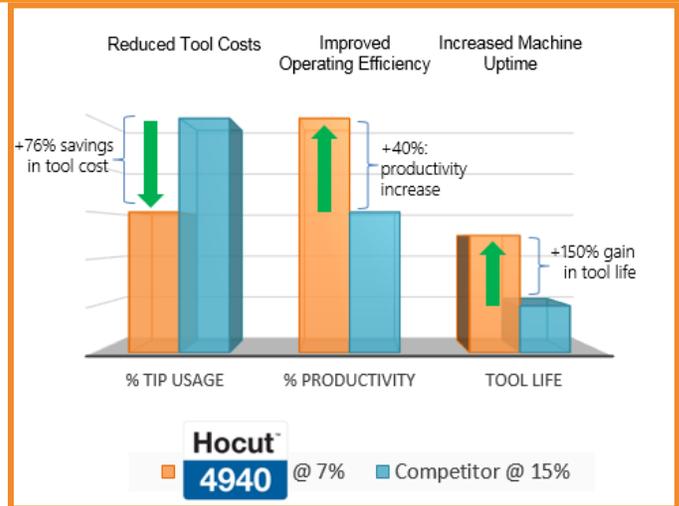
- **Tool life increased by 150% from 20 minutes to 50 minutes**
- **Feed rates increased reducing machining cycle time per component by 1.5 hours yielding a 40% increase in productivity**
- **Coolant concentration of the working fluid was reduced to 7% versus the competitive fluid which was run at 15%**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



Fluid Partnerships Making A World Of Difference

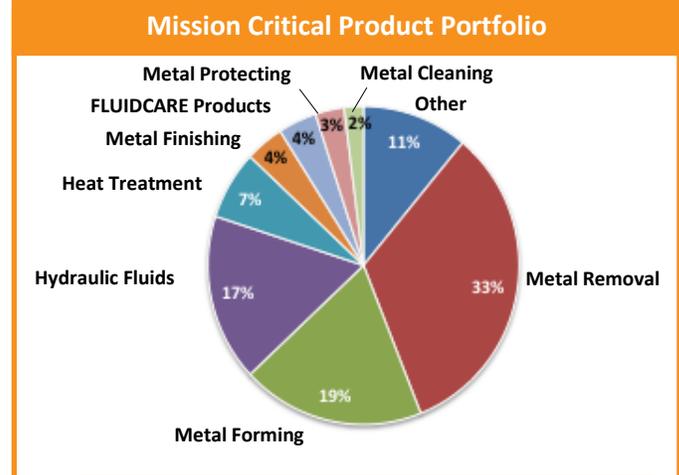
Results and Benefits

- **150% increase in tool life:** 20 minutes to 50 minutes. Less downtime, and lower running costs.
- **40% increase in productivity:** Cycle time reduced by increasing feed rate saving 22 minutes per lateral cutting set. 1.5 hour reduction in machining time per component: 3.75 hours to 2.25 hours
- **Reduced maintenance:** Corrosion-free machine tool beds, seals, and coatings. Fewer tool changeovers per shift.
- **Reduction in coolant concentrate usage:** From 15% to 7% coolant concentration in working fluid. Saving 21 drums of coolant per machine annually.



Product consumption reduced from 25 drums/year to 4 drums resulting in annual cost savings of about 17,000 \$US per machine...an 85% reduction in annual coolant cost/machine tool

For immediate consideration and evaluation of your fluids needs, and to request additional support material, please contact your Houghton International sales representative at houghtonintl.com/en-us/requestinfo.



Established Client Relationships

Houghton International has long-standing partnerships with over **13,000 Leading Global Customers** serving their metalworking fluids needs across a wide range of applications and diversified end-markets including **automotive, aerospace, fabricated metal goods, bearings, energy, non-ferrous and steel.**



Houghton International Inc.
P.O. Box 930 • Valley Forge, PA 19482-0930
Phone: 610-666-4000 • Fax: 610-666-1376
Contact: houghtonintl.com/en-us/requestinfo