

Aerospace Components Machining : Reduced Cycle Time and Tooling Costs at UK Ejector Seat Manufacturer

HOCUT® 795 B

The Challenge

The UK plant has over 50 years experience in the manufacture of aerospace components, structures, sub-systems and assemblies providing manufacturing, supply chain management and project management capabilities to major aerospace companies, including BAE Systems, Airbus, Boeing and Rolls Royce in Europe and North America.

The plant manufactures a range of ejector seat components on Mori Seiki and Okuma machining centres.

A Quaker Houghton QH FLUIDCARE™ programme has reduced the number of coolants used from 6 to 2 and helped to reduce waste coolant costs by 90%.

QH FLUIDTREND™ online software has been introduced to plan machine lubrication and highlight areas of excess usage. The software also records coolant strength and conditions with fluid management charts available as online and printable formats.

The next step for the QH FLUIDCARE™ programme was to support proposals to reduce tooling costs and improve productivity.

The Solution

HOCUT® 795 B was proposed for machining trials supported by independent performance data on similar operations from other aerospace component manufacturers. HOCUT® 795 B has consistently shown itself to be the best in class coolant for aerospace alloys.

Significant productivity benefits and outstanding tooling cost reductions were found for a range of materials thanks to the high lubricity of the product. An additional EHS benefit from HOCUT® 795 B was a reduction in mist generated during the process.

The Benefits

- Cycle times for aluminium parts reduced from 4.5 minutes to only 1.5 minutes – 66% improvement in productivity. Milling cutter life and drill costs were reduced from £1,400 to only £650 for a batch of 50 parts
- Drill and milling cutter life for aluminium parts extended – minimum 46% reduction in tooling costs increasing with tools remaining in good condition
- Carbide tip usage reduced by 80% for a batch of 50 steel parts which resulted in a £100 savings for each batch
- Carbide tip usage reduced by 75% for a batch of 200 steel parts, which resulted in a savings of €40 for each batch
- Across whole plant substantial tooling cost saving is expected to exceed five figures – measurement is ongoing
- Improved working environment with less mist – higher lubricity HOCUT® 795 B generates less heat during machining
- New focus on importance of fluid and tooling cost data – recognition of impact of coolant on cost per part

The Product

HOCUT® 795 B is a versatile, heavy duty, chlorine-free, soluble metal removal fluid specially formulated to machine Aerospace grade aluminum alloys. HOCUT® 795 B is compatible with hard water, clean running and bio-stable assuring long, odor-free sump life. It provides high corrosion protection without staining. HOCUT® 795 B is approved for all usage areas defined in BAC-5008, NASA, Sikorsky Helicopter, UTC Aerospace, Vought Aerospace, Pratt & Whitney and Bombardier.

