

Machining Case Study

Working in partnership to improve production processes

Precision Products have been established since 1974 as a recognised manufacturer of high quality specialist turned parts for a global customer base. Their site, based in Sussex, is equipped with state of the art CNC machinery and has extensive capacity to manufacture complex and non-complex turned parts. Precision Products serve a range of key industries including aerospace, medical, automotive, water and oil and gas, to name but a few.

Precision Products have production capability to produce a range of components up to 65mm diameter from bar. The ability to produce these turned components to the highest of quality is reflected through accreditation to AS9100 Rev D and certification through the BSI to BS EN 9100:2018 and ISO 9001:2015.

precision
products



In particular, Precision Products have been deeply involved in the production of specialist parts for the aerospace industry, of which one part (pictured) is a manufactured washer profile using British Standard grade S 80 Stainless Steel.

It is of utmost importance, for parts like these and others for the aerospace industry, that the surface finish is excellent and the profile is exact to the specification. Of course, all parts produced need to be consistent and be delivered to the end users exacting schedule.

ECOCUT HFN GB 16 LE

Machining Case study

Project Overview

Machining washer parts from British Standard grade S80 Stainless Steel. This is for use in the aerospace industry, which demands extremely good surface finish, as well as very flat profiles on each part produced. Neat cutting oils are used to improve all aspects of the machining process, including the drilling and turning of parts as they are fabricated. Precision products wished to reduce downtime and reduce overall consumable cost by using a suitable neat cutting fluid for production of the washer parts, whilst maintaining high standards of the finished washer parts.

Problem

- High levels of downtime
- High consumables cost

Solution

ECOCUT HFN GB 16 LE

By using ECOCUT HFN GB 16 LE across all the production stages, on average Precision Products stand to make a cost saving of almost £1000 per month of production when compared to using a basic refined oil

Results

- Consumable cost saving of 45% over basic refined oil
- Between 8% and 83% cost saving over competitor products
- Saving of almost £1000 per month of production when compared to using a basic refined oil
- Reduced the cases of visual and profile defects on the parts

The Problem

FUCHS was tasked to reduce downtime and overall consumable cost by changing to a more suitable neat cutting fluid for the production of washer parts, without compromising on finish quality.



The Solution

ECOCUT HFN GB 16 LE was trialled alongside three other neat cutting oil products of similar viscosity from competitors, as well as a basic refined oil. Each fluid was trialled across seven main machining processes used to form the washer parts.

At each stage visual checks and monitoring were carried out to ensure the high-quality finish and profile of the produced parts, as well as the condition of the tools. When noting quality failures on the parts, such as chatter marks, witness marks or scratches, this was an indication of tool failure.

The tool failure could be attributed to material build up on turning tips, excessive wear or material build up in flute points of drilling bits, which results in these tools requiring replacement. It was shown using a higher quality neat cutting fluid prevented premature failure of the tools used in the machining.

The number of parts that were successfully produced on a single tool without defect on each process were tallied during each fluid on trial. The tooling cost, along with the fluid cost, were combined with the efficiency of the fluid at each machining process to give an overall consumable cost per washer part.

Results

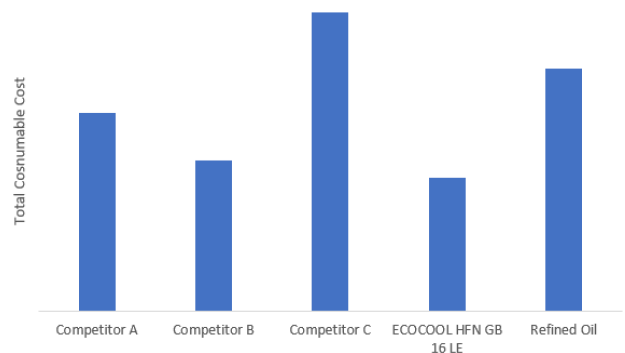
ECOCUT HFN GB 16 LE on average across all machining processes was calculated to be the most cost effective, prevented premature tool failure, and reduced the cases of visual and profile defects on the parts. By using ECOCUT HFN GB 16 LE, Precision Products were shown to make a consumable cost saving of 45% over using basic refined oil, and between 8% and 83% cost saving over competitor products.

Proven Performance

ECOCUT HFN GB 16 LE on average across all machining processes was calculated to be the most cost effective, prevented premature tool failure, and reduced the cases of visual and profile defects on the parts.

Conclusion

By using ECOCUT HFN GB 16 LE across all the production stages, on average Precision Products stand to make a cost saving of almost £1000 per month of production when compared to using a basic refined oil.



ECOCUT HFN GB 16 LE

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Technology that pays back

ECOCUT HFN 16 LE contains highly-refined base oils and is recommended for normal to difficult machining and grinding operations on steel, cast iron and yellow metals. Additionally it is especially suitable for the machining of magnesium and its alloys.

ECOCUT HFN 16 LE contains substances to improve oxidation stability and corrosion protection. The inclusion of EP additives improve load bearing capacity and reduce wear between tool and work-piece.

ECOCUT HFN 16 LE is formulated to have low misting and low evaporation properties, it contribute towards reducing environmental and workshop pollution.

Benefits

- Low foaming
- High flashpoint
- Good washing effect keep machines clean
- Reduce consumption because low-misting and low evaporation
- Reduction in workshop pollution
- Increase tool life
- Provides consistent grinding and cutting performance
- Good filterability
- Tried and tested formulation in wide areas of application
- Free of chlorine, zinc and heavy metals
- Available throughout the world



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