



## Productivity takes off at aerospace plant thanks to AlfaPure Z3

Airbus, Broughton, Flintshire, UK

Case story



Airbus wings being loaded onto an aircraft at Airbus, Broughton.

In the UK, AlfaPure Z3 coolant treatment systems have helped the Airbus plant at Broughton, Flintshire eliminate coolant fouling and improve productivity.

### Assembling wings for Airbus family

Airbus's Broughton site assembles wings for the whole Airbus family of aircraft. Crucial to the construction process are alu-

minium stringers which provide strength and flexibility. From 15 – 21 metres long, these are machined from solid billets on a Dorries Scharmann CNC machine. Most of the aluminium is removed in large sections, until only the strong, flexible core material remains. Typically, component tolerances are accurate to  $\pm 0.150$  microns on the horizontal surface and  $\pm 3$  mm on a 21 metre length of material.

### Fast Facts:

#### The customer: Airbus, Broughton, UK

The West factory at Airbus, Broughton, is an 83,500 square metre facility housing wing assembly for the double-deck, 555 seater A380 airliner, as well as other aircraft manufacturing activity. Leading edge manufacturing techniques are used to assemble and equip the wings.

The A380 wings are despatched one at a time down the River Dee on the Dee River Craft to the Port of Mostyn. They are then transferred down to the river Langon, Brittany, France, on the seagoing vessel Ville de Bordeaux, and then transported by road to Toulouse.

### Tramp oils entrained in the coolant

Machining a 15 metre billet of 20/26 aluminium takes approximately 4.5 hours. 27,000 litres of water-based Castrol Alusol A coolant cascade continuously over the workpiece to maintain the operation at the correct temperature. However, tramp hydraulic oils can become entrained in the coolant along with swarf and other metal fines. The two are separated in a series of settling tanks but, although this decontaminates the swarf and the solid scrap, it does not clean the coolant itself.



An Alfa Laval AlfaPure Z3 used for cleaning coolant in the stringer manufacturing shop at Airbus, Broughton.



An employee at Airbus, Broughton's wing assembly plant inspects an aluminium stringer.

In the past, this contaminated coolant caused severe problems. Tramp oil tended to leave a film on the cylinders inside the CNC machine which allowed foreign objects to adhere to them. Dealing with these problems was both time and labour-intensive. Airbus's stringent Health & Safety rules meant that the whole line had to be shut down to enable the interior to be manually cleaned, resulting in a significant loss of production.

#### AlfaPure Z3 cleaning system from Alfa Laval

Airbus engineers initially solved the problem by replacing the coolant at frequent intervals. Thanks to coolant costs and the need to employ specialist contractors to handle the waste, this proved to be expensive. Consequently, they evaluated several different coolant-recovery methods before settling on the AlfaPure Z3 cleaning system from Alfa Laval.

#### Unscheduled downtime eliminated

The AlfaPure Z3 is a compact unit that uses high speed centrifugal force to separate liquids and solids. The machine in Airbus's stringer manufacturing shop continuously cleans 3,000 litres of Alusol A coolant per hour and returns it to the production line. Since it was installed they have eliminated the problem of bacterial growth and, most important of all, any unscheduled breaks for clean-up operations. In the two years the AlfaPure Z3 has been operating, Airbus has had to purchase coolant only to top up fluid lost to atmosphere or on workpieces or scrap.

A second AlfaPure Z3 module is also in operation in the wing spar production plant, where it is used to clean and recycle a water-based coolant, Cimstar 560, which cools an Ingersoll machining centre, the largest of its kind in the world.



#### AlfaPure Z3

The AlfaPure Z3 is an advanced mobile module for cleaning water or oil based fluids.

- System includes separator, feed pump, sludge pump and control system.
- Touch screen based control system – extremely easy to operate.
- High capacity-to-size ratio.
- Requires less than 1.7 m<sup>2</sup> of floor space.
- Can handle tanks with volumes of up to 150 m<sup>3</sup>.
- Normally installed in a bypass system, operating continuously.

#### How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com).