

Axle supplier – approaching zero scrap

In-process probing reduces downtime and sees scrap rates approach zero at Albion Automotive

Albion Automotive's axle design and manufacturing comes from an established track record of reliability and engineering quality. Albion products have been specified by truck users for most of this century, and the Glasgow plant now embraces a just-in-time philosophy to develop a product range that will carry its customers into the next century.

A programme exists at Albion Automotive that sees the company continually upgrading its production capabilities with the latest CNC machine tool technology, part of a process of continual improvement. The company took delivery earlier this year of a turnkey Univer 6 flexible machining centre fitted with Renishaw probing.

Manufacturing Engineer, Robert Kirkwood explained, "The Univer 6 is a customised vertical machining system, the first of its kind, with a fixed 6-metre bed, fitted with two Sempuco rotary tables, giving us a fourth axis and allowing pendulum machining. The machine is fitted with a 52-tool magazine that allows us to machine ten different axle components". Whilst he spoke, the machine was producing a front axle beam for a 7.5 tonne truck. Held in a 'yoke fixture' on the left-hand side of the 6-metre table, the beam would be delivered as a fully machined component, whilst on the right-hand side a 100cwt component for an 18-tonne truck was being loaded by hoist into its fixture.

The cell operates in three shifts in a 24-hour day, the pendulum machining having eliminated downtime. However, a key component enabling continual machining is a Renishaw MP3 probe with radio transmission, integrated into the machining centre for measuring of the exact position of the forged front axle within the fixture. Mr Kirkwood explained, "We load the machining programmes into the Univer 6 manually or from a laptop computer. The probe enables the length of each axle beam to be measured, setting the offsets. We also have limits set into the control whereby if the part is too long it will be rejected. This has allowed us to machine 100% accurately forged components and gain an unexpected area of cost control as each rejected part is now returned to the supplier. The Renishaw probing system is detecting inferior supplied forged components, something that was not possible before."



The Univer 6 machines the complete axle to a tolerance of 3 microns, drilling and reaming the mounting holes for the chassis and the bore hole for the king pin, together with a host of other operations.

Mr Kirkwood continued, "Using Renishaw's probe tells us where to machine the king pin hole and boss, which is critical, especially when we put a cross hole through the king pin bore, because each of those holes have to be in relation to one another". The Renishaw MP3 radio transmission system, stipulated by Albion, does not require line of sight between the probe signal transmitter and the receiver, which can be mounted anywhere within 10 metres of the probe.

So far, the results of Albion's continual improvement policy look good - machining of axles on the Univer 6 with Renishaw in-cycle probing has seen scrap rates approach zero, with greatly improved throughput times.