

Leader supports the quick change philosophy

When Mike Robinson assumed the position of managing director at Leyden Transmissions in January 2010, he brought with him a wealth of lean manufacturing principles and experience that are being applied to the ambitious growth plans the company has. With the help of a quick change workholding solution from Leader Chuck these plans are fast becoming a reality.

Based in a 10,000 ft² facility in Liversedge, West Yorkshire, Leyden Transmissions was established over two decades ago to produce power couplings and braking systems for various industries, such as the heavy braking systems fitted to large cranes and hoists. Its product range can be used on anything that has a large power transfer that requires a solid or semi rigid coupling joining a motor and gearbox. Although the design is old, it is tried and trusted, and spare parts for this established business also keep the company busy.

Over the years, it has also developed its precision subcontract machining skills and supplies high quality components to a number of loyal customers. Material cut include EN8 and cast iron for couplings but for the subcontract machining market it ranges from phosphor bronze up to super duplex stainless steel pump bodies for harsh environments.

Mike Robinson joined the company in January 2010, after completing an initial



consultancy contract. He says: "With a turnover of just under a £1 million per year and very low overheads, I knew it was a great little company. It was ripe for investment so it was really a case of applying the right manufacturing principles and making some key equipment decisions. The business plan I created pointed to it becoming a £1.5 to £2 million company in the next five years and we have already started along the route with a new £200,000 Doosan 5-axis machine tool."

With his background in lean manufacturing gained within the automotive and various other industry sectors, Mike Robinson is acutely aware of the efficiency gains and production benefits available when a machine shop is set up to maximise the spindle run time of its machines, minimise setups and negate down time.

"From stopping one job to cutting the next, our vision is 20 minute maximum setup time for any part, including loading any tools required, workholding and downloading the NC program. It is an aggressive target but it is achievable once everything is in place. For example," he says, "the 60-tool ATC can be changed while the machine is running and it is equipped with probing to automatically measure off sets. Quick change workholding systems allow the part to be loaded accurately and, due to the weight of the parts, the material handling is also being improved with

an overhead hoist aiding the loading and unloading operations."

The high precision Hainbuch MS Dock and Mando segmented mandrel from Leader Chuck Systems addresses the quick change workholding demands. Mike Robinson explains: "For a number of quality critical components we have to locate on the bore of the parts. We roughly sketched the fixturing we thought would do the job and approached a number of suppliers. However, a fortuitous visit to the MACH 2010 exhibition and a stop at Leader's stand produced exactly what we had in mind. So, we had a stock item solution that covers the majority of the workholding required for that family of parts."

These high end precision parts are machined for hydraulic systems and pump manufacturer Oilgear Towler. "This customer has a specific manufacturing method that we must adhere to," Mike Robinson says. "Starting with round bar stock, we bore a hole in the middle and then mill it square before any cross feed holes are drilled into it. So, we have a decent size bore to locate and hold on which also acts as the datum with everything subsequently measured from it."

Part of the company's new philosophy is to hit five sides in one setup, which is where the 5-axis machine comes in. The six sequential machining operations are replaced and it can be produced in just two, with just the back face



being accessed after the cycle has been completed on the 5-axis machine. It is a radical departure for the customer and the parts produced are being tested to prove the process capability.

Batch sizes range from single parts up to 300 or 400 off, but the 1 to 30 parts are where most of the jobs fall hence the need for the quick set up and change over. Just one of its customers has more than 65,000 part numbers, any of which can be called off for spares.

"The Leader product is well suited to the quick changeover ideology. The kit is very rapid when changing from one size to another, as a full mandrel change only takes three to four minutes. So the product fits into the remit of what we are trying to do. And, with its vulcanised rubber joints between the chrome/nickel steel segments it is flexible, so we can hold parts with 16 up to 100 mm diameter bores with just five mandrel cores," states Mike Robinson.

A number of young engineers have been employed by the company, accepting the new working practices without being held back by any traditional legacy issues. If they hit a problem, rather than waste time struggling with it, the MS Dock and Mando system means they can quickly take a job off the machine



and get the next job on so the spindle keeps running. Providing the time to think about why the job was not working.

"Leader's support has been superb. I was sceptical of the workholding at first because of the weight of the component and the overhang from the bore to the face being machined. For example, one component has a 38 mm diameter bore and the part is around 200 mm across flats. And, it's not just the weight of the part, there is the cutting force of the tool contacting the workpiece.

"We tried it out one evening with reduced cutting data, and then gradually increased the

feeds and speeds until we got to the tooling manufacturer's recommended rates. We were astonished and the workholding far surpassed what we thought it might do," Mike Robinson says.

Leader Chuck's technical sales engineer, Will Hare has supported the customer trials for this innovative use of technology. "Having liaised with Hainbuch's German engineers on the product we were confident that the solution would work. In fact, we said if it does not work we will take it back."

Prototyping is another area that the quick set up and changeover times promoted by Leaders workholding solution will allow the company to aggressively target. "There are several other valve manufacturers, in the hydraulic sector as well as oil & gas, which we will target when the new systems become established. I believe we will win business because of the reduced set up times we can achieve. We are putting the technology and equipment, such as the MS Dock and Mando system from Leader, in place to do this," concludes Mike Robinson.

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65,000 reasons to buy

ShopHardinge, the highly successful USA-developed concept for online selection and purchasing of Hardinge workholding, rotary products, toolholders and machine tool accessories has now been launched in the UK.

With 65,000 products in its online inventory, the ShopHardinge.co.uk e-commerce website offers purchasers the opportunity to browse, select and purchase a vast range of products ranging from a simple collet to a sophisticated rotary table.

"ShopHardinge has been up and running in the USA for the past 2 years so they have first hand operational knowledge of how it works in a live environment," explains Rob Beckett, Hardinge UK's Workholding product manager.

"In adapting the idea for the UK, we have had to make changes to the pricing structure and various aspects of the site behind the scenes, but in essence the model is identical and we are now live in the UK."

From the customer viewpoint ShopHardinge could not be easier. The simplicity of the concept is based on three easy steps: "Log in ... Shop ... Check out."

Customers can charge their purchases to their account in the normal way for monthly billing but there is also the opportunity to purchase via a debit or credit card.

"There are other areas of the site that will prove particularly helpful to our distributors," adds Rob Beckett. "After we have allocated them a unique password, as with direct customers they can check stock on line and then purchase what they need without having to phone through. This will greatly streamline the whole purchasing process and ensure we are in a position to provide exceptional levels of support to ensure customers get the products they want when they want them.

Regularly purchased items or repeat orders are facilitated by a 'Quick Shop'



Rob Beckett with the new ShopHardinge logo.

feature that enables a re-order at the click of the mouse and there is an order history section," he adds.

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