

Robots take the load for cooperage

Automation technology is proving it can mix effectively and unobtrusively with the heritage craft of barrel manufacturing at Speyside Cooperage in Alloa. Two Kawasaki robots and a purpose designed lathe are being used in the refurbishment process of traditionally built oak barrels.

An independent cooperage, Speyside manufactures and refurbishes over 100,000 oak barrels a year in its two factories at Speyside and Alloa. Although maintaining the craft skills demanded by the manufacturing process, the business is open to the implementation of machinery where output and health and safety can be improved.

Oak barrel refurbishment is an important part of the whisky industry; firstly as previously used barrels, for example sherry barrels, are used for maturing whisky to provide unique flavours and secondly, often after a typical 10 years without attention, barrels are well suited to being repaired for continued service.

Meeting a growing trend to refurbish both ends, or Heads, of a barrel as part of the refurbishment process, Speyside Cooperage went to specialists Aberlour Engineering. The brief was to design a system to automatically handle the process of removing up to 3mm from the barrels internal diameter and to handle it through a charring process after machining.

Steven Langlands, Manager of Speyside Cooperage, explains, "Traditionally the refurbishment process requires 'dropping out' only one end of the barrel using a lance burner and 'scouring' the inside of the barrel with a rotary wire brush. Increasingly our customers are requiring both ends to be removed and a shaving to be taken from the internal diameter to clean the surface.

"With the barrel open at both end it lends itself to a lathe operation which we specified to Aberlour Engineering. Using a lathe introduced a loading issue as some of the larger barrels weigh in excess of 100Kgs."

Aberlour Engineering designed a horizontal lathe with powered tail stocks and two 300Kg payload Kawasaki ZX300S Robots to load and unload the barrels. The load robot picks a barrel from an infeed position and loads it into the horizontal lathe. After a barrel has been machined the unload robot removes the barrel, inverts it over a collector unit to catch the wood shavings and places it onto a conveyor. This conveyor transports it through the charring process which has the effect of opening the newly machined wood grain to allow it to absorb moisture as part of the wood's sealing process.

After the charring process the barrel is removed by the Kawasaki robot and placed onto an output conveyor. Using one gripper design for all four barrel variants, the system takes only 15 minutes to change the lathe tooling which comprises a cone on each tailstock.

"When the decision was made to refurbish by 'dropping both ends' we assumed that the process time would be extended above the existing 'one end' manual operation. In fact the new process is far quicker. The system effectively increases our capacity - subject to feeding it enough barrels," continued Steven Langland.

"Also we could possibly have managed with a single robot, however, a conscious decision was made to have two; for future expansion of the process we would not require extra robots as we now have the potential for each robot to service two machines if they are mounted on linear axes."

The system requires one operator and to date Speyside Cooperage has found that a half day of robot training has been sufficient. If programming and maintenance training is required in the future this will be provided by Aberlour Engineering and Kawasaki Robot UK but as the system is designed, and has proved, to be straight-forward to operate and reliable this isn't seen as an issue.

Finally at Speyside Cooperage, Alloa, where everyone is either a qualified or apprentice cooper, automation and a heritage craft are working in harmony with the only special skills evident being that of the cooper.

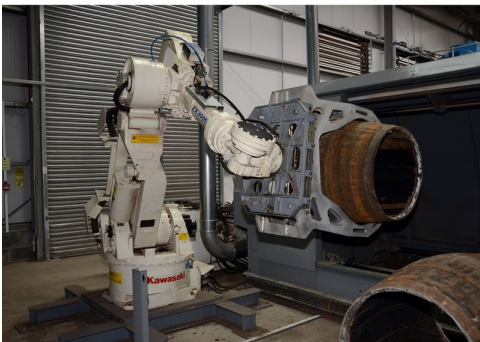


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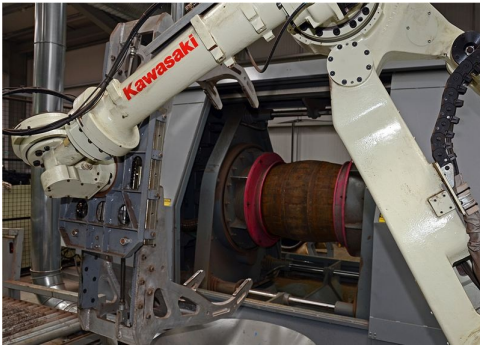


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Notes to editors:

Kawasaki Robotics (UK) Ltd is the UK robotics division of Kawasaki Heavy Industries Japan.

Based in Warrington, Kawasaki Robotics (UK) Ltd occupies a 15,000 Sq. Ft. Building. Its location provides easy access to the main motorway network and is at the centre of its customer base.

The facility centralises all the sales and customer support operations, with areas for customer demonstrations, training, robot test and integration and a large area for stock machines. Over 1,800 machines are now operating in a wide range of industries and applications throughout the UK.

Operating through a network of system partners, automation integrators and also supplying direct to end users, Kawasaki Robotics (UK) Ltd offers experience in the widest range of industry sectors.

Kawasaki Heavy Industries introduced its first industrial robot into the Japanese domestic market in 1969 and since then has developed into a world leader in the manufacture of industrial robots. Renowned world-wide for quality and technology in all its engineering systems and products, this philosophy is continued throughout the Kawasaki Robotics divisions.