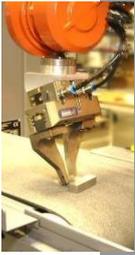


news

ADVANCED AUTOMATION

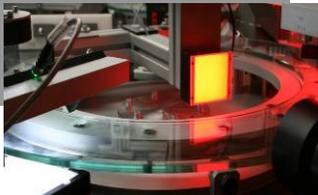
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Leading robotics solutions provider partners with RNA to transform insert moulding process

R A Labone, a plastics injection moulding manufacturer, wanted to install an automated system for the production of its tyre pressure sensor housings which would meet the volume and price demands of its blue chip customer whilst enabling the manufacture to be based in the UK.

A solution was required for the whole end-to-end manufacturing process, including loading inserts, moulding, insert-present testing, cooling, decay testing, and packaging.

The solution

RNA, a leading automation integrator, partnered with FANUC UK, the world's largest robotics and automation solutions provider, to produce a fully automated system for manufacturing, testing and packaging. Two FANUC M10iA robots were integrated into the automated system, which includes the following steps:

1. Two types of component parts (Insert and Antenna) are fed and orientated via two vibratory bowls and linear feed systems.
2. The components are fed into two independent precession shuttle mechanisms so that the Insert and Antenna are always in a known repeatable and accurate positional location
3. A FANUC M10iA robot is used with a double gripper mechanism to pick four inserts and four antenna from their locations
4. The inserts and antennas are placed in the correct orientation within the four-cavity moulding tool
5. A vertical moulding machine with a two position rotary index table is used to enable simultaneous loading of inserts and antennas while the moulding process takes place
6. On completion of moulding, the two position rotary index table actuates and presents an open mould tool to a second FANUC M10iA robot
7. The mouldings are taken through an electrical test to check inserts are present.
8. The mouldings are moved to a specially developed cooling system based on a rotary table and cooling fans to ensure parts are cool before leak decay testing.
9. The mouldings are placed on a leak decay test station
10. The mouldings are placed into automated packing area.
11. Empty boxes are fed from an in-feed conveyor to the packing area, filled and transferred to the out-feed conveyor system.

Following the installation of the automated system at the R A Labone plant, FANUC and RNA deployed engineers to educate employees around

how to set up, operate and maintain the automated system.



Benefits

The automated solution provides a fully integrated and compact system increasing productivity, ensuring consistent product quality, reducing costs and minimising waste. The system also increases precision, speed and accuracy when placing the inserts and antennas into the moulding tool. Reliability of positioning components is also ensured by high precision and accuracy of the handling processes.

Outcomes

Manufacturing efficiency and output have met the required targets as a result of the automated system, with 24 hour production 5 days per week.

Alan Edmonds, head of technical sales, RNA said: "We chose FANUC due to the speed and accuracy of the FANUC robot and as part of a recommendation from R A Labone who already use FANUC's products and services. The automated system has completely transformed production capabilities for R A Labone and we have had further requests for future projects off the back of this success."

How to order your RNA spare parts

- ▶ RNA online enquiry form
- ▶ Contact RNA spare parts sales department - **David Chumber** on +44 (0)1217 492566 ext.116
- ▶ (For US customers) Contact RNA North America agent:

Palace Packaging Machines
 Contact info: 610-873-7252
palace@unscramblers.com

David Griffiths appointed Technical Director of RNA Automation Ltd

RNA is pleased to announce that David Griffiths has joined the company in the role of Technical Director.

With over 35 years' experience in the field of bespoke machinery design and manufacture, David will be responsible for overseeing the overall technical and engineering side of the business. He will take over the reins from Mick Keane who has occupied the position since the business began in the UK back in 1986.

Mick will continue as technical adviser to the business whilst also enjoying his well-deserved semi-retirement.

Patented electromechanical quick release linear System

RNA's new quick release linear feed system is designed for those looking for a quick and safe changeover between component parts, which reduces downtime and increases productivity. The patented quick release linear system is based on electro-mechanical technology, allowing the system to be used in applications where other quick release mechanisms such as pneumatics cannot be used.

Linear feed systems are well known in the field of packaging and manufacturing equipment. Such systems propel parts in a linear path, providing a continuous stream of parts in a production line. A linear feed system comprises two essential components, a vibratory assembly that causes vibrations and a feed assembly that conveys parts along the linear path.

To transmit vibrations from the vibratory assembly to the feed assembly, a secure mechanical connection is always required. This is traditionally achieved by bolting the feed assembly securely to the vibratory assembly. However, when replacing the feed assembly to allow for different parts to be used, the process of disconnecting and reconnecting a feed assembly can be complicated and take an extended length of time. This complexity and time is multiplied when multiple such assemblies are used in parallel, which is common in manufacturing production lines. The result is that valuable time is lost when reconfiguring a production line.

A solution to the above problem is to use quick release mechanisms that secure the feed assembly to the vibratory assembly and also allow for rapid removal and replacement of the feed assembly. Such mechanisms are commonly based around pneumatic technology, where pressurised air is used to provide a clamping force between the feed assembly and the vibratory assembly. In some applications,



however, pneumatic systems cannot be used due to the particular requirements of the parts being processed. One example is in pharmaceutical packaging, where pneumatic systems cannot be used due to the possibility of contamination between different batches of material and between different products. Pneumatic systems also add to the complexity of the vibratory feed system, requiring air lines and a compressor, which increase the risk of contamination due to leaks and exhaust air mixing with the clean environment in which such packaging machines tend to operate.

To solve the problems mentioned above, RNA developed an electromechanical system to secure the feed assembly and the vibratory assembly. Instead of using traditional clamping mechanism, the electromechanical clamping mechanism allows the system to be used in applications where other clamping mechanisms such as pneumatics cannot be used, while retaining the advantages of a quick release mechanism. A further advantage is that the clamping mechanism requires power only when it is being operated to clamp or unclamp, thereby removing the possibility of failure when the linear feed system is being operated.

RNA also provide quick release bowl feeder which has been designed to provide a low cost option for machinery needing rapid changeover between products, or where regular cleaning is necessary.



Precision Belt Conveyor- **innovation** in the sector of pallets transport

Italplant has developed a patented precision belt conveyor PBC combining high accuracy, high rigidity, smooth movement, versatile positioning with custom lengths. As a new member of Italplant's Precision conveyor family, the high quality low cost PBC represents real innovation in pallet transportation.

Also available in two working position, carousel and over-under, PBC offers precision positioning with a modular design. Instead of using a chain of pallets, every pallet in PBC is mounted on the timing belt, which is world's first belt conveyor in the carousel position.

The unit can provide an intermittent motion (Italplant rotary tables), or continuous (HER

Italplant programmable servomotors indexers). PBC is capable of both semi-automated and fully-automated assembly and can be easily integrated to a variety of automation processes.

RNA are agents in the UK for the Italplant range of products and can now offer the latest addition to the Italplant precision conveyor range PBC.

To meet all the customers' requirements RNA can supply a complete project that includes not only the complete precision link conveyor and placers, but also support base and fixtures to fit onto the links. Load and unload pick and place units can also be integrated to the system.

