

Text and photos
by Alexander Farnsworth

The quick cure

A new robotic packaging cell at pharmaceutical giant AstraZeneca's plant in Södertälje, Sweden is helping get allergy medicine to market faster.



The IRB 140 robot places packages of shrink-wrapped Rhinocort bottles into a box.

> With an R&D budget of 5 million U.S. dollars and some 17,000 of its 66,000 employees focused on research, AstraZeneca is a research powerhouse. The British-Swedish pharmaceutical manufacturer works with a wide range of medicines on the cutting edge both to prevent and to treat illness. It is also on the cutting edge when it comes to its production.

One example is its packaging of Rhinocort, a cortisone-based anti-inflammatory glucocorticosteroid for the once-daily treatment of respiratory ailments like hay fever. It has been on the market for about 15 years. The company manufactures Rhinocort in 800-liter batches that it then decants into 10 milliliter bottles with a nasal spray attachment. After a quality test, these are then warehoused for future labeling, packaging and shipment.

“We have decreased our time to market from eight weeks to two weeks. It is all about having shorter lead times in the face of added competition and reducing warehouse stock,” says maintenance engineer Vidar Nymark. “And this new packaging line helps with that.”

The new packaging line came online in September 2007.

Raw – that is unlabelled and unpackaged – bottles of Rhinocort are delivered to the clean room packaging line from the warehouse in five-kilo boxes containing 180 bottles apiece. In the first stage of the packaging line they are pushed onto a revolving table that feeds them one by one onto a conveyor belt.

The conveyor belt then transports each bottle through several different machines that label them and push them into a small carton with a printed product specification sheet. And then ten of these cartons are shrink wrapped together in two rows of five.

The conveyor belt continues into the FlexPack Robotics FlexCell, where the suction pads on the gripper of the first ABB IRB 140 robot picks up these shrink wrapped packages and places them in a cardboard box, 16 at a time, or 160 per box, until it is filled. Another machine in the cell tapes the boxes shut.



The second and bigger ABB IRB 4400 robot in the FlexCell has several functions. First, it erects the cardboard boxes for its little brother. Once these are filled, it reaches over and lifts them, also with suction pads, up to an inkjet printer that writes directly on the cardboard the product information, batch number and a barcode. At the same time, a barcode reader checks the barcode. Then the robot palletizes the boxes in one of two pallet areas.

Every thirty minutes, an operator comes to pull out the full pallet and replace it with an empty one as the robot starts filling the other area.

Three operators run the whole packaging line which has the capacity to label, box and pack 45,000 nasal spray bottles in two shifts per day.

The main advantages of this robotic cell are ergonomic, says Vidar Nymark. "Now, two people no longer have to do the repetitive task of erecting a box

and of lifting it onto a pallet. It is done automatically." Nymark lent his given name to the bigger of the two robots. The arm is clearly marked "Vidar."

"The robot suits my personality. Its movements are calm and collected with many pauses. The movements of the smaller robot are fast and furious. We named that one after someone else," he says.

And AstraZeneca is pleased with the packaging solution. "Working in close cooperation, FlexPack Robotics and ABB bring together a unique combination of know-how and experience in flexible robot-based packaging," says Lars Siggelin, Production Development Packaging at AstraZeneca. "The FlexCell concept is proven to have a high degree of availability and flexibility with very short changeover times during batch changes and it fulfills FDA regulations, which is very important to us. The FlexCell concept gives us flexible and clean packaging of pharmaceuticals with full traceability." ☺

>FACTS

AstraZeneca in brief

- Sales (2006): USD 26.5 billion
- Headquarters: London
- Production and R&D: Sweden
- 66,000 employees
- www.astrazeneca.com

FlexPack in brief

- Based in Västerås and Gothenburg, Sweden
- Employees: 20
- Established: 2003
- FlexPack Robotics' FlexCell products stringently adhere to the Good Automated Manufacturing Practice (GAMP) standard that is required by FDA regulations to ensure totally and perfectly safe quality in the production and packaging of pharmaceutical products
- www.flexpack.se



32 robots and counting

AstraZeneca has so far installed 17 FlexCell systems from FlexPack Robotics including 32 ABB robots at their plants in Snäckviken, Gärtuna and Umeå in Sweden. Benefits include:

- Provides short changeover times for batch production

- Helped improve time-to-market from eight weeks down to two weeks
- Provides full traceability of pharmaceuticals
- Complies with stringent FDA safety regulations
- Has an availability of 99 percent