

PACKAGING

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ABB

As fast as it is safe

Together, five robots and one operator turn out one Risperdal Consta blister pack every second.

> The founder of the Belgium-based Janssen Pharmaceutica, Dr. Paul Janssen, was responsible for laying the foundations for the schizophrenia drug Risperdal Consta. Now Janssen Pharmaceutica is the scene of another innovation: a new packaging line where five IRB 340 robots from ABB ensure that the conveyor belts at the company produce one drug a second.

The new system is an ingenious one. System integrator Intrion combined machines from various manufacturers to make up a single well-oiled system.

The packaging line starts with the supply of syringes to the packaging machine on a conveyor belt. A vision system captures the contours of the syringe and communicates the syringe's position to >



“A drug is always a long-term product, so it is worth the investment.”

Chris Vleeschouwers, Intrion

Intrion at a glance

- Founded in 1973
- Intrion is a result of the merger of Createch Engineering and Dolmen Industrial Projects
- Yearly revenues are 25 million euro
- 150 employees

Benefits of robots

- 60 blisters per minute
- Extremely accurate
- PickMaster software aids flexibility
- Save operator from doing repetitive work
- An ROI of less than two years
- Robot is very reliable with a meantime between failure of over 100,000 hours

the first robot so that it can quickly and easily pick up and place the syringe in the blister.

The blisters are also made there directly, created from a roll of environmentally friendly, heated PVC using compressed air and a vacuum seal. The blisters are then filled with three Risperdal Consta components: the syringe, the needle kit and the vial containing the drug's active ingredient. Three robots quickly and accurately place their own component into the blister. The robots are continuously communicating with each other. For example, Robot 3 will know exactly where Robot 1 has already placed a syringe and where it should then position the vial.

A color camera then scans the filled blister to verify that all components are present. If an irregularity is detected, the blisters concerned are transported to the waste container. Approved blisters go to Robot 4, where the package leaflet is added. The fifth and

>FACTS

Janssen Pharmaceutica at a glance

- Located in Belgium
- Founded in 1953 by Dr. Paul Janssen
- Over 80 drugs in human medicine
- Over 4000 employees, of whom more than a third are highly educated
- Yearly revenues are 1.787 million euro (2007)

final ABB robot then applies a foil cover to the blisters intended for retail and places them on a conveyor belt to be packaged in cardboard boxes.

The robot installation can produce 60 finished blisters per minute. This production rate could never be achieved manually. Two people would be needed for each component – needle kit, syringe and vial – so a total of six people would be required simply to fill the blisters. At the moment, only one person is required to continuously supply the machines with vials and needle kits.

A complete exclusion of humans is impossible in this setup. “Because we are dealing with drugs, everything must be inspected by humans,” says Janssen Pharmaceutica project engineer Eric Kooremans. “This is too important. No matter how accurately a machine is set up, it is never infallible. We also test the robots every day. Every now and then, our operators put the wrong product into the blisters, to see whether the system’s inspection functionality is working properly. So far, we haven’t caught the robots doing anything wrong.”

In June 2008, Intrion started constructing the Janssen packaging line. It took three months to build, validate and put into production, but all parties agree that it was worth the effort and the investment. “A drug is always a long-term product, so it is worth the investment,” says Intrion operations director Chris Vleeschouwers. “We would never suggest such a system for a trendy, non-food product that will only last a short while. The PickMaster software application is a huge advantage of the ABB robots. It is an extremely flexible control tool. You can link external devices up to it, as we have done here with the color camera.

“It is also a very open system that can be programmed efficiently by our specialists. Until last year, no other robot manufacturer offered a similar ‘FlexPicker’ type of robot. It is an exceptionally fast and accurate robot for this purpose. We make it do one hundred picks and places a minute. It could theoretically handle almost twice that many, but then we would be compromising on accuracy, which we should never do where drugs are concerned.”

One of Janssen Pharmaceutica’s main reasons for choosing the robot system is the great flexibility it offers. The robots can also easily pick other products



to be placed into blister packs. If traditional supply systems were used, the initial investment would be much higher each time. The robots will maintain their purpose and value if they are ever removed from the line. They can easily be expanded, reprogrammed and used for other lines and products.

One final and significant advantage of using packaging robots is that the robots do the simple, repetitive work. Nobody has to stand by a conveyor belt all day placing syringe after syringe into the blisters. The operators carry out inspections and provide a regular supply of products, which results in much more job satisfaction. ☉