

# Sweden – A Pioneer in the Field of Automation

Sweden is responsible for any number of innovations which range from Viking longboats, dynamite and ball bearings through to the SLR camera. The Scandinavians also take a progressive approach to powder coating and have introduced modern technologies and high levels of automation into the process. The three examples below demonstrate the intelligent uses of automation in Swedish industry.

Toyota Material Handling Manufacturing Sweden AB (TMHMS), which is part of the Toyota Material Handling Group, is one good example of the innovative ability of Swedish companies. Forklifts and other industrial trucks have been manufactured at its plant in Mjölby in Sweden since 1946. Every year 85,000 units roll

off the production line and are exported all over the world.

Since installing a MagicCylinder powder booth, TMHMS has relied on Gema's fast colour change system. The company has three production lines dating back to the period from 2001 to 2006, each of which was originally equipped with two paint-

ing robots and robotic guns. A lack of spare parts for the electronic systems led to the need to replace the robots. TMHMS took this opportunity to install a new application system and modern conveyors on all three lines.

Two MagicCylinder powder booths are used to apply black coatings. These are



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The high level of automation allows a much greater variety of parts to be coated cost-effectively..



The use of a new powder gun has produced a much more consistent finish on forklift trucks.



Powerful chainsaws are the trademark of the well-known Swedish company Husqvarna. Up to 13,000 parts are produced and coated every day in its main plant in the town of Husqvarna.

equipped with MagicControl system control units, fluidising hoppers and AP01 pumps. During the course of the project, Gema launched the new GM03-R powder gun for robots, which TMHMS immediately installed on production line 1. The result was a very consistent finish and improved flow compared with the old guns.

A variety of colours is applied on production line 3. This booth was fitted with an OptiCenter, together with OptiSpray AP01 application pumps, which allows TMHMS to process special colours for individual customers quickly and cost-effectively.

The comprehensive retrofitting programme has future-proofed the booths and enabled them to coat a variety of different parts at an affordable cost. The reliability of the AP01 application pumps and the consistent, reproducible coating results that can be achieved with the robotic guns make an essential contribution to achieving the high standards of quality that are characteristic of the TMHMS brand.

### Contour detection using lasers

Quality Powder Coating (QPC), a company based in the Swedish town of Nassjö, provides high-quality powder coating

and corrosion protection services. Coatings are applied on two lines both with and without primers, depending on customers' requirements.

In order to meet its customers' needs both now and in future, QPC invests in the latest technology. When it was time to replace its ten-year-old primer booth, QPC looked for a colour change solution which offered the highest possible levels of flexibility, efficiency and cost-effectiveness. During a visit to another company, QPC's production manager noticed the OptiSpray AP01 application pump from Gema. Tests were then carried out in Gema's lab and QPC became convinced of the benefits of the AP01 and was also impressed by how easy the OptiCenter powder centre was to use.

During the tests, Gema also presented the new UA04 gun axis. This system uses laser detection to automatically position each individual gun vertically. In the case of QPC the guns can be moved to a depth of 300 mm. This is the perfect solution for coating the inside of housings and complex parts. QPC is the first company in Scandinavia to use this new product from Gema. The PCC mode of the control units has been largely responsible for the improved quality of the metallic coatings in particular.

The new colour change system from Gema allows QPC to provide an even more

reliable, flexible and efficient service to its discerning customers. For this reason in the summer of 2017 the top coat line was also replaced by a MagicCompact EquiFlow colour change system with UA04 gun axes.

### From die casting directly to powder coating with the help of robots

Husqvarna is famous for its powerful chainsaws and disc cutters which are used all over the world. In its main plant in the Swedish town of Husqvarna, up to 13,000 parts for these products are manufactured and coated every day over three shifts.

In 2016 Husqvarna launched a project to increase the level of automation in its production facilities. Robots were installed to sort the die cast components and automatically hang them on the conveyor. As part of this project the powder coating shop was also evaluated with the aim of speeding up colour changes, reducing the need for operator interventions and ensuring the highest levels of availability. Tests carried out by Gema persuaded the production managers and experienced powder coaters to choose the MagicCompact EquiFlow booth with a dual OptiCenter and OptiSpray AP01 application pumps.



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The robotic guns produce a consistent, reproducible coating.



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A newly developed gun axis is the ideal solution for coating the insides of housings and complex parts. This system automatically positions each individual gun vertically.



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In order to increase the automation level of its powder coating process, Husqvarna invested in the very latest equipment. The result is fast colour changes, a reduction in operator interventions and high availability.

As 80 percent of the parts are coated in the company's traditional orange colour, this powder is pumped straight from a BigBag (FPS16) to the OptiCenter. Because space is in short supply in the plant, Gema suggested suspending the reciprocators to allow for more freedom of movement.

Husqvarna is certain that the MagicCompact EquiFlow colour change system is the ideal means of meeting its automation targets. Previously three employees were needed in this area and now only one powder coater is responsible for all the tasks. The production process is high-

ly reliable, which is an important factor, together with the robots in the three-shift operation. Husqvarna was also impressed by the suspended reciprocators, the short implementation period and the fast commissioning process.

### **Bold investments that have paid off**

In all three cases, companies in Sweden have invested in modern technologies and have been brave enough to play a pioneering role. Their appetite for innovation has allowed them to keep their production facilities in this high-wage country and to

remain competitive into the future. Perhaps other companies should adopt their approach and invest in new, efficient and reliable technologies? In the long term this is a much more promising strategy than moving production to low-wage countries. //

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