By Michael Lawton
Photos Thomas Müller

Beauty found in efficiency

Make-up boxes that catch the eye of the consumer also need to be produced efficiently. Cosmetic packaging manufacturer Geka Brush has turned to robots to pack mascara caps, saving the company – and its customers – money and increasing production.

> When it comes to selling cosmetics, it's not just the product that makes the sale. The packaging is just as important. Whether it's high-end make-up sold in exclusive boutiques or popular brands sold at discount retailers, it's important how the box looks on the shelf, as well as by itself. No one knows this better than the Bavarian-based company Geka Brush, one of the market leaders in cosmetics packaging worldwide, specializing in packaging for liquid color cosmetics.

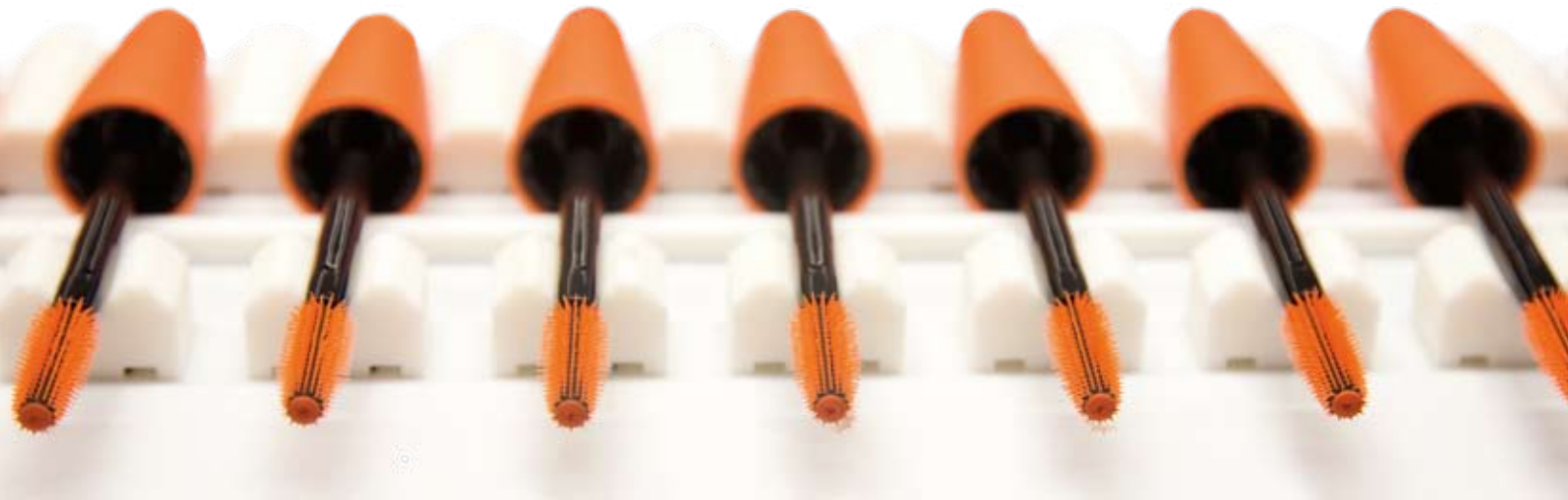
Through progressive improvement of products, personnel and processes, Geka Brush aims to provide total satisfaction and marketing success for their customers. Above all, it aims for remarkable flexibility to keep pace with international developments and changes in consumer demands through efficient adaptation of the manufacturing process.

In this improvement process, Geka Brush has been working for some years with Kühne+Vogel, a company which makes customized manufacturing lines. Geka Brush has eight of Kühne+Vogel's assembly lines, and one of their three newest ones now features an ABB robot packing the finished mascara caps.

"This is the only way to keep manufacturing here in Germany," says Josef Jedlitschka, deputy head of the assembly section at Geka Brush. "This gives us a cost advantage over the competition: It saves one machine operator who used to be needed just to pack the caps."

The caps are assembled on the Kühne+Vogel line – screw tops are pressed into decorative covers, brushes are welded on to rods, and the finished caps, with a brush-on-a-rod, emerge at the end of the line. There they are dropped onto a conveyor, and an operator sorts them neatly into a box.

That last procedure has been taken over by the robot: On one line, the robot picks up finished caps and lays them on a rack. When the rack is full, the caps are lifted into the box. When each layer is full, the robot tells a machine to cover the layer with a polystyrene sheet, and when the box is full, the robot tells another machine to take it away and replace it with an empty box.



>FACTS

Geka Brush

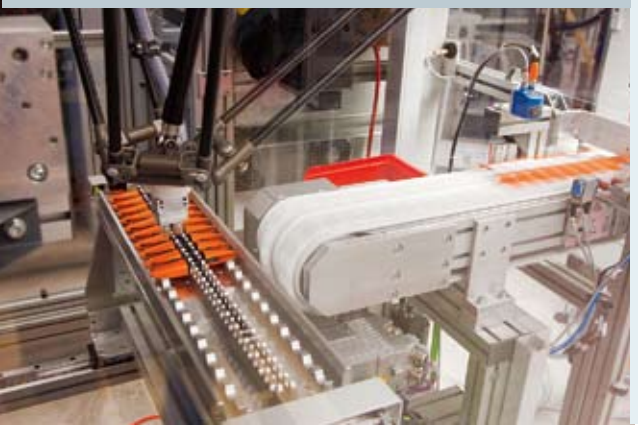
- Located in Bechhofen, Northern Bavaria
- Founded 1925 as general brush manufacturer
- Now makes cosmetics packaging for liquid color cosmetics
- 450+ employees producing more than 200 million packages a year
- www.geka-brush.com

Kühne+Vogel

- Located in Roth near Nuremberg
- Founded 1969 as electrical machinery manufacturer
- Now provides automation processes and special machines worldwide
- Main customers: automotive industry, but also cosmetics and entertainment industries
- 30 staff
- Annual turnover: over 4 million Euro
- www.kuehneundvogel-pa.de **(in German)**

Pluses with robots

- IRB 340 Robot with IRC5 controller picks up and stacks cosmetic brushes
- Handles two brushes every 2.2 seconds, could handle 2 brushes every 2 seconds
- Replaced a worker doing tedious, one-sided work, who instead now helps work with the additional capacity provided by the system
- Improved production from 23,000 to 30,000 pieces per shift



Since the introduction of the IRB 340, production has improved 30 percent: from 23,000 to 30,000 brush caps per shift.

"This is the only way to keep manufacturing here in Germany."

Josef Jedlitschka, Geka Brush

"This is much less stress," says operator Valentina Högele. "These new lines are much faster, and it's very hard to keep up with packing the boxes – especially when you have caps which are bulky, and you can only hold two or three in your hand at once." She prefers moving between the machines – filling them with parts, dealing with through-put problems – to the one-sided task of filling boxes for hours on end. Her conclusion: "We've worked it out with a pocket calculator: Without the robot, we produce 23,000 caps in an eight hour shift; with the robot it's 30,000–at least if the robot works without stoppages."

If the line produces more caps, it does so with fewer staff. "Usually each line needs 1.3 people," says Jedlitschka, "one person to pack the boxes and another to service several lines and help with the packing when it gets to be too much. Now the line with the robot needs 0.3 people, so we've been able to reduce the staff on our three new high-speed lines from four to three." Since the three new lines create additional capacity, this has not led to any reduction in staff.

The robot cell was designed by Kühne+Vogel on the basis of an ABB IRB 340 FlexPicker with an IRC5 controller. "This was the first time we used an IRC5," says Kühne+Vogel project manager Sven Beyersdorfer, "so we had a training session from ABB, to which we invited someone from Geka Brush. That way, we have someone there who understands the robot and can carry out some repairs and adjustments." Much of the maintenance is carried out by remote monitoring, but it helps to have someone to talk to by phone who understands the issues.

The cell was delivered in February 2007, and was initially attached for adjustment and testing to an older, slower line. "It was more resting than working," says Beyersdorfer. After it had proved itself, Geka acquired it and contributed towards the cost of development. Now it is on a line which produces two caps every 2.2 seconds, but it is not even being stretched by that. "There are plans to introduce faster lines, and the robot can cope with up to one cap per second."

The big international companies which produce cosmetics are strict taskmasters: Their packaging can only be produced on machinery which they themselves have approved. One of the big companies has approved the new robot cell, and even wants to get other suppliers to use it. Geka has to act as agent, since the company has an exclusive right to the technology for the next two years.