

# Laser cutting & assembly

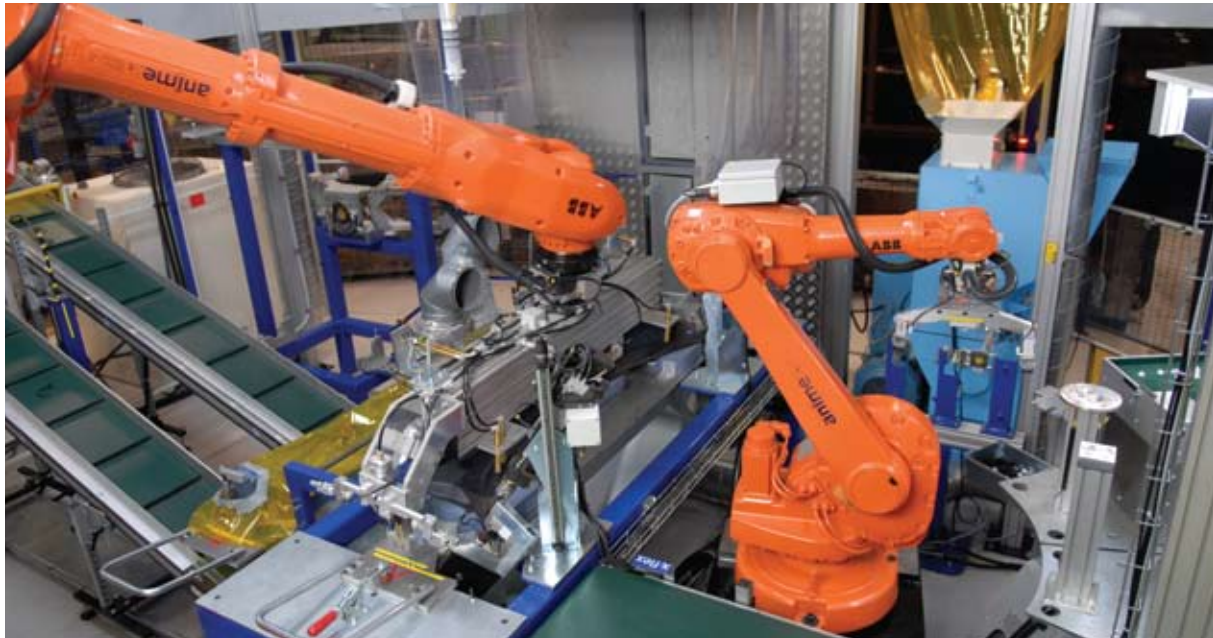
## Case study: Automotive exterior parts, IAC, Sweden

### Applications

- Injection moulding
- Laser cutting
- Assembly

### ABB Products

- IRB 6650
- IRB 1600



### Robots save time and achieve the precision and flexibility demanded by customers of Swedish plastic auto parts company IAC.

Watching the two newest ABB robots go about their business at the IAC factory in Skara, Sweden, one of eight robotic cells onsite, is like observing a carefully choreographed dance.

In its 60-second cycle time, the big ABB 6650 robot first plucks, with its suction cups, a moulded plastic cowl (the small scoop at the base of the windshield and rear of the hood the forces air into the air filter), dashboard, or fender from an adjacent Engel plastic injection moulding machine. The robot's arm then effortlessly carves away any remnant plastic hang-ons and drops them into a grinder, to be transported back into the moulding machine.

After a change of grip, the cowl is transferred to another work station where a smaller ABB 1600 robot, with an Animex robot-guiding pick and assembly system, inserts plastic clips so the piece can be clicked into an automobile within seconds. And finally, the piece is 100 percent vision-controlled for computer and quality analysis before

it is gently placed on a conveyor belt to exit the cell and get packed for transport.

### Improving quality

"Previously, we had three people full time doing all these steps," says Steve Hammond, factory manager in Skara. "But it is not just about saving manpower. It is also about improving the quality and consistency of the product. I mean a robot can be programmed to do the same thing every time, and it can also be programmed to do a quality check, which means there is a far less chance of shipping a problem part to the customer."

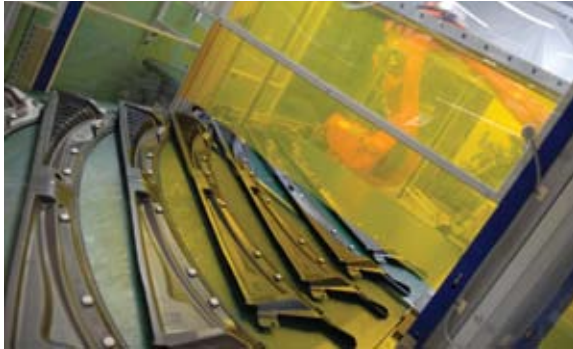
Hammond continues: "To compete on the world market from a high cost country like Sweden, we have to be as efficient as possible. And these robots give us efficiency, quality and confidence in our products. Robots are a must have in our industry."

But IAC's business is quite complex. Car and truck companies like Volvo, Saab, Audi, Scania and others often produce different versions of the



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same vehicle. For example, the center console in one truck model can be different in size, functionality or even color in the same model of truck. Or the cowl grills will differ on the same model of car depending upon whether it is right or left driven, a convertible or a sedan.

For IAC this means that rigorous processes must be in place to accommodate all the different varieties of products that their customers want, and to ensure quality.

The IAC factory in Skara has 56 different plastic injection moulding machines whose moulds vary in size from 100 kilos up to 30 metric tons for larger parts.

### Automation

Since IAC is a so-called batch manufacturer, each time a new part is made, a tool change operation on the injection moulding machine is required.

According to the company's key performance indicators, these (manual) changeover times have gone down from over 60 minutes in 2005 to less than 45 minutes in 2006.

And in line with the company's increased push towards automation, the number of defective parts shipped to customers has gone down in the same period from 150 parts per million to less than 50.

The vehicle interior has become one of the most important areas in which car and truck manufacturers can differentiate themselves from their competitors. Therefore, IAC offers their customers specialized know-how and expertise from concept, development and validation through to manufacturing, in order to deliver best-in-class solutions,

which is where efficiency and automation are playing an increasingly important role.

"The whole idea is to use robots for all the repetitive tasks," says IAC's Senior Production Technician in Skara, Björn Stenander.

But funnily enough, in the new robotic cell supplied by ABB and Animex, where just about everything else is automated, the replenishment of the small plastic clips that are mounted on the cowl, fender or dashboard, for quick installation on the body of a car or truck, is done manually.

"4,000 pieces last for six hours, so it is not a problem," says Stenander.

### >FACTS

#### IAC

IAC, which stands for International Automotive Components, is a global supplier of "Best-in-Class" solutions for interior systems, carpet and acoustics products, and exterior parts for the automotive industry. Their range of products include instrument panels, cockpits, door panels, center consoles, pillars, bumpers, sun visors, cup holders, cowl grills and more.

- With more than 70 locations in 16 countries, IAC has a strong global footprint.
- IAC customers include Ford, Volvo, Land Rover, Jaguar, Porsche, VW, Audi, Skoda, Seat, Bentley, Opel, Saab, Mercedes-Benz, Chrysler, BMW, Suzuki, Renault-Nissan, Volvo Trucks and Scania.
- Headquarters are in Krefeld, Germany, and the company employs 6,500. The turnover is USD 1.5 billion.

#### Benefits

- Quality has substantially improved, with defective parts reduced from 150 per million down to 50 per million.
- Changeover times have been reduced from 60 minutes to less than 45 minutes, meaning greater flexibility.
- The three people who previously did the job are freed to do more demanding work.