

# Assembly

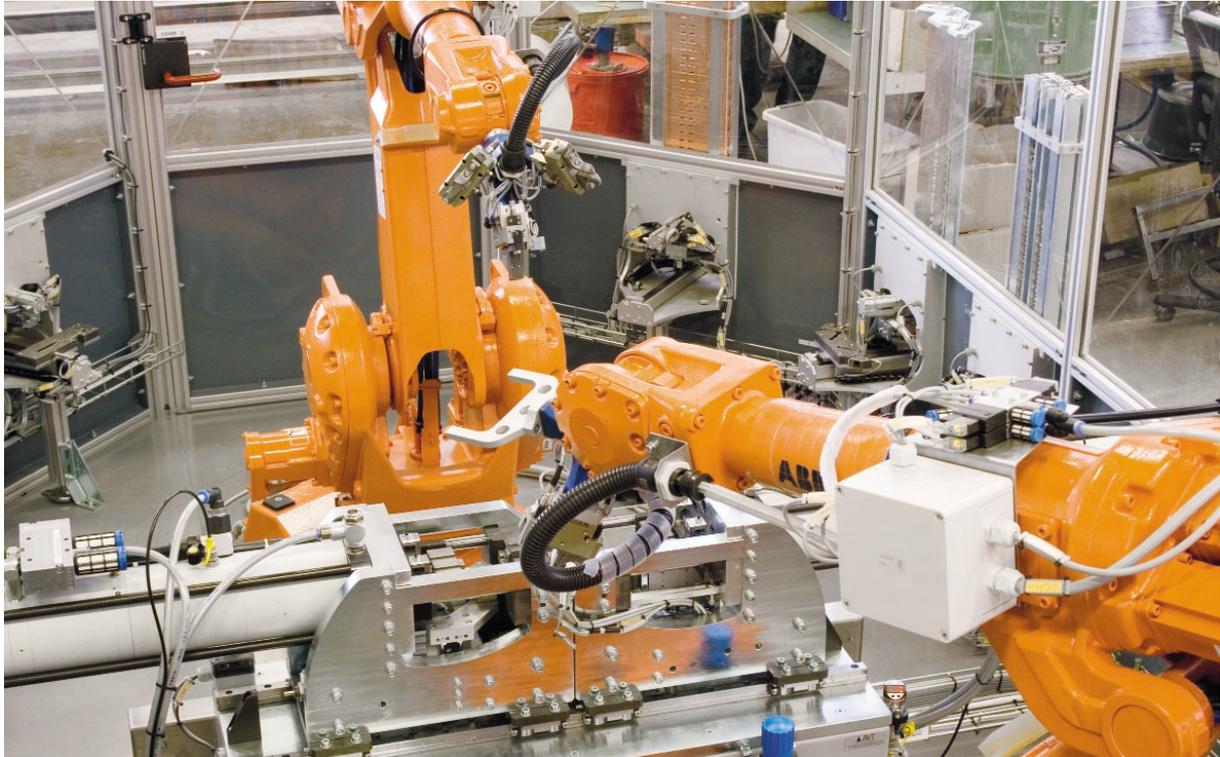
## Case study: Cable Connections, Kabeldon, Sweden

### Applications

- Assembly

### Products

- IRB 1600
- IRB 2400



**An advanced robotic system with offline programming has saved Swedish cable accessories company Kabeldon untold man-hours and money.**

Cable cabinets, insulation, connectors, cable joints, cable terminations – these are all vital elements that ensure our world remains connected, wired and electrified. “The reliability of a cable network depends on the performance of all the accessories,” says Björn Persson, from Kabeldon, an ABB company in Alingsås, Sweden, situated about 50 kilometers northeast of Gothenburg. “So the quality of the installation is vital.” Kabeldon specializes in electrical power solutions that enable customers such as power companies to safely join and connect electrical cables according to stringent requirements for simplicity and reliability. “Our core competence is in electrical connections in cable systems, and we concentrate our research on stress grading, contact technology, polymeric materials and surface treatment,” says Persson. “Our products are

used all over the world and fulfill very high reliability standards.”

### **Automated assembly line**

In December 2006, Kabeldon installed a new assembly line comprising two robot cells with three ABB robots in total to manufacture four different sizes of a new generation of a fuse switch disconnector. These are typically found in cable distribution cabinets and are ubiquitous in cities, residential areas and industrial parks.

Specifically, the assembly line consists of one cell with two IRB 2400 robots. One of them assembles the fuse switch disconnector from three different pieces and places it in a press, while the other lifts it out of the press and assembles a spring before placing the finished product in a rack. The second





cell uses one IRB 1600 robot to automatically mount screws in the unit. According to Persson, the line is capable of assembling one fuse switch disconnecter per minute and has substantially increased Kabeldon's productivity. Previous assembly was done manually at four different workstations, which obviously took more time and required more floor space. "Another benefit is that the quality of the units has noticeably improved," says Persson.

### Full responsibility

Kabeldon's new assembly line was designed and built by Specma AVT, which is conveniently located across the street from Kabeldon's factory in Alingsås. Specma AVT designed, built, programmed and installed Kabeldon's new assembly line. The company also subcontracts some series production for Kabeldon. But as an integrator, Specma AVT is one of the leading companies in Sweden to take full responsibility for the whole chain, from building the assembly line to maintaining it. The fact that the two companies are neighbors is pure coincidence. The company's clients include such heavyweights as Haldex (traction and brake systems), SKF (bearings) and Autoliv (airbags). "Usually there are four or five different players on a project of this magni-

tude," says Tomas Eklöf, part owner and technical director of Specma AVT. "So when things go wrong it can become a real piethrowing contest. The advantage with us is that we take full responsibility from beginning to end, so customers avoid such problems in the first place."

### Off-line programming

Specma AVT used ABB's Robot Studio software to program the robots offline. Like a simulator, Robot Studio can be run on a desktop computer to mirror exactly the setup of both robotic cells at Kabeldon. Once all parameters were satisfactorily tweaked, the information and computer code generated in Robot Studio could be transferred by Ethernet cable from the PC to the robot cells. According to Eklöf, Robot Studio was a huge help in making sure the ABB robots worked the way they were supposed to. The automated programming of the robots also saved a lot of time for Specma AVT. This was the first time Specma AVT delivered ABB robots to Kabeldon. "And I hope it is not the last," says Eklöf.

### > FACTS

#### About Kabeldon

Kabeldon is situated in Alingsås, Sweden, and has about 150 employees.

Kabeldon is part of the ABB group and its products, from fuse switch disconnectors to busbar systems, can be found in electrical cable networks worldwide.

Web site: [www.kabeldon.se](http://www.kabeldon.se).

#### About Specma AVT

Specma AVT was formed in May 2001 when Alingsås Verktyg AB merged with TLC Engineering AB. The company specializes in building customerspecific automation solutions for its clients, which include Haldex, Autoliv, Almondy, SKF, Atlas Copco and others. Specma AVT had revenues in 2006 of SEK 50 million and employs 45 people.

Web site: [www.specmaavt.se](http://www.specmaavt.se)