



Krog Iversen

Case study: Metal Fabrication

Applications

- Arc welding

Products

- Wood burning stoves
- Gas burning stoves



Improved working environment and welding quality

Making life cozier through exclusive wood-burning and gas stoves has been Krog Iversen's forte for almost 30 years. Lately, producing the stoves has also become much more comfortable, thanks to an ABB robot system.

> The Danish company Krog Iversen started to manufacture wood-burning and gas stoves in 1978, just after a major international oil crisis, and founder Henning Krog Iversen saw a great demand for alternative heating sources. Some 80 percent of the company's stoves are exported. Markets are diverse, including countries such as Japan, South Africa and the United States. The largest markets are the Nordic countries and Germany.

Environmental compatibility has long been important to Krog Iversen, and the company has been able to take advantage of increasingly strict worldwide environmental regulations. "Our products are designed to minimize emissions," says Henning Krog Iversen. "We're also very

interested in creating the best possible internal working environments at our plants."

This is where an ABB robot system for automatic welding of Krog Iversen's insert stoves comes in. At the beginning of February 2006, Danish ABB partner DanRob installed a new robot system at Krog Iversen's Vissenbjerg factory, including an IBB 1600 robot, two 250A manipulators, a MigRob 500, a TSC with BullsEye and an A316 wire feeder box, operator panel and security system.

The robot system delivery from ABB in Västerås, Sweden, came with standard components; DanRob designed the fixtures and the complete system layout. DanRob also provided a 3-D tool for the robot studio layout. The



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A TSC, Torch Service Center, with BullsEye precision is a valuable feature in Krog Iversen's new robot system for automatic welding.



company continues to offer Krog Iversen support and customized logistics, including robot components, through a service contract.

"About 10 years ago, ABB delivered the first robot system to Krog Iversen," says Frede Lysemose, sales and marketing manager at DanRob. "There's a very good relationship between the two companies, and DanRob has been able to install the new system, which will assist in welding four kinds of insert stoves."

DanRob has also provided the ABB IRC5 software to control the new robot system.

"It's quite user-friendly in terms of employing different commands," says Henrik Jørgensen, software programmer at Krog Iversen.

More stoves, healthier employees

Henning Krog Iversen says that the new automatic ABB robot system will be able to produce more stoves, compared with the ones produced through manual welding. He also sees that it can offer optimal working positions for system operators.

"One problem with manual welding has been the awkward working positions," Henning Krog Iversen says. "In the new ABB robot system, the manipulator is designed to suit the operator's work."

Krog Iversen specifically asked DanRob to ensure that the robot manipulator could be adjusted to the optimum level for each operator using it to put welded stoves on the loading pallets for delivery.

"We've implemented a way to raise and lower the

manipulator, which can also be moved in sideways directions," Lysemose explains. "In this way, it's adapted to operator requirements in terms of working positions."

According to René Hannibaldsen, Krog Iversen's technical manager at the Vissenbjerg plant, it was crucial that the operator's working position be taken into consideration.

"We're very satisfied that ABB and DanRob didn't deliver a standard robot set, but rather a special solution tailor-made for us," Hannibaldsen says. "Whether we have tall or short persons operating the robot system, they can each have a comfortable working position. The robot is programmed to stop the manipulator in user-friendly positions, so the operator can decide in the programming the height from which the stove should be delivered to the loading pallet. Without doubt, this will save many problems with strained necks, shoulders and backs."

Previously, in the manual welding process, the stoves were put on a lift table that could only be operated in up and down motions. This led to unwieldy ways of welding the stoves. ☹

>FACTS

Benefits for Krog Iversen with automatic welding

- Enables increased production
- Offers optimal working positions for operators
- Provides a more even and smoother welding of higher quality