RobotStudio™

Case Study: Crenlo – contract manufacturer, heavy-duty vehicle industry

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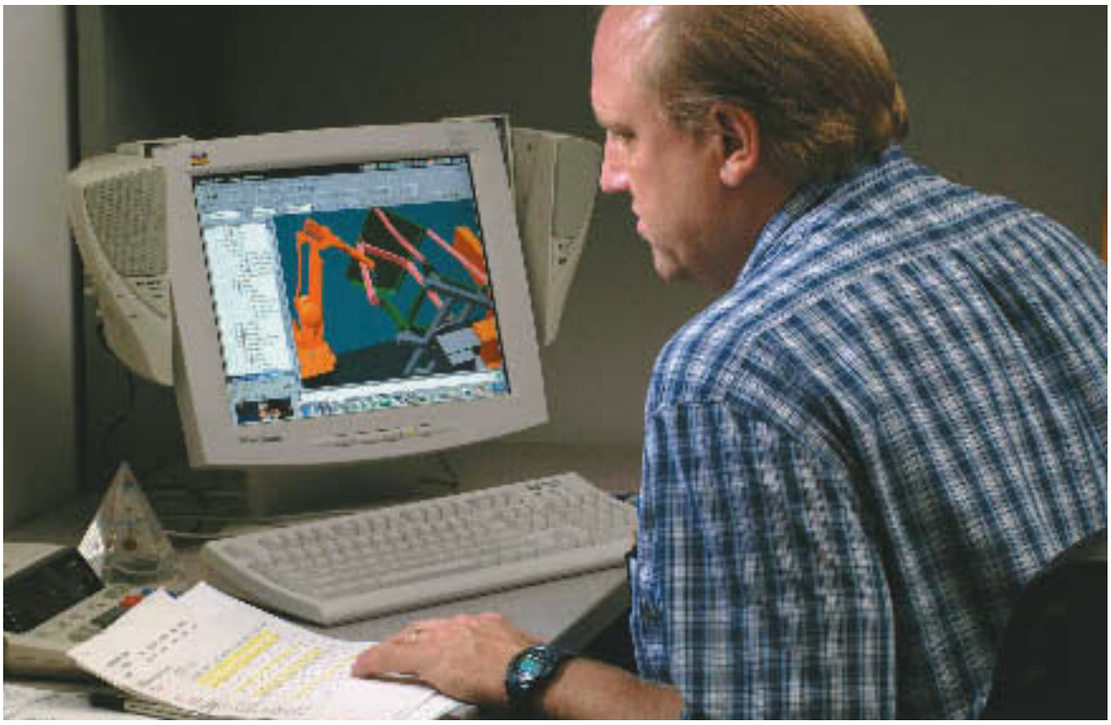
Based in Minnesota, Crenlo is an expanding specialist manufacturer producing rollover protection cabs for off-road construction equipment. Thanks to RobotStudio, ABB's offline programming software, the company was able to program its robots while its new plant in South Carolina was being equipped, thereby securing a prestigious order from Caterpillar.



"The idea using RobotStudio to program offline was a huge step – it was pretty much a necessity" Jeff Petersen, Crenlo Corp.

Crenlo used RobotStudio to catch the Cat.

The race began with a contract to manufacture rollover protection cabs (ROPs) for Caterpillar. As both Crenlo plants in Minnesota were already welding cabs and modular electronics enclosures day and night, a new line had to be built at the planned plant in Florence, South Carolina. Jeff Petersen, Crenlo's Robot Applications Supervisor, understood that programming the robots online – and then adjusting peripheral equipment at each work station – was a handicap the company could ill afford if they wanted to accommodate Caterpillar.

With ABB's robotic welding systems already working hard at the Rochester plants, Jeff knew where he could go for help. And when he heard about RobotStudio, the new, sophisticated off-line programming tool, he jumped at the opportunity to test it. The software enabled Jeff to do the programming offline as well as pre-plan the set-up and production flow before the workstations were built. In fact, RobotStudio slashed programming time by a staggering 75% compared with manual programming. The result? Parallel programming made the big Cat happy.

Automation in flow

Four robot systems now work in unison to produce the backhoe (a high volume product), using what Jeff calls a 'progressive build'– a miniature flow line where each robot provides subcomponents for the next. Jeff points out that this approach requires a very fine balance: "RobotStudio helped us determine which parts go where". Accuracy is critical when program-

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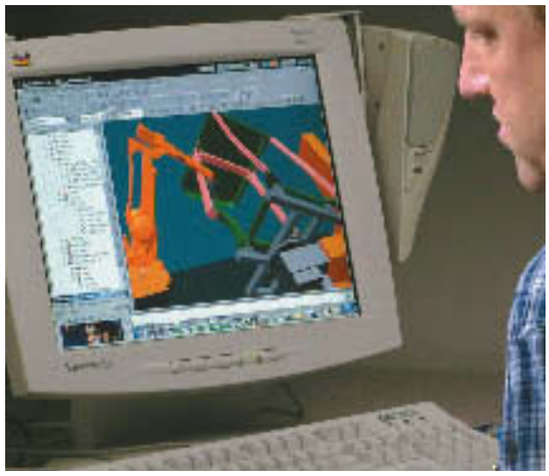

Jeff programming offline in Rochester…

…for the new plant 1200 miles away in Florence.

ming offline. That is why RobotStudio employs VirtualRobot™ Technology, incorporating the controller software from the real robot. "There's really no risk of error in this type of situation because you're running exactly the same machine," explains Jeff.

One programmer, hundreds of programming hours

Two more robot systems are currently welding a group of wheel loader cabs. With four different models to program in numerous sizes, RobotStudio helped Jeff by-pass hundreds of hours of online programming time. Jeff took fixture and piece part drawings to ABB who provided him with a solid 3D model – a 'virtual' he could work with offline. RobotStudio has an add-in created especially for arc-welding applications, the Arcweld PowerPac, and Jeff appreciates its simplicity.

Quick changes at "welding utopia"

Sometimes alterations in the production line just have to be made. Jeff provides an example: "Last week we shifted a product from an inverted robot cell to a floor standing cell. With the model already built, all I had to do was transfer it to another robot in RobotStudio and start programming. It took me roughly two hours to generate a program offline. And within a few minutes of installation, I had a program that was within a quarter of an inch of the ideal path. So you could say RobotStudio gave me an extra three days. To me this is like welding utopia."

Shrinking Carolina

As RobotStudio has allowed Jeff to do all the new plant programming from his Rochester base, it will surely be used for more Crenlo projects in the future. The new plant in Florence is turning into the lean operation it was planned to be, enabling Crenlo to better serve its customers in southeast U.S.A. In fact, it has allowed the company to bring home manufacturing that was previously handled abroad.

FACTS AND FIGURES ABOUT THE ROBOT INSTALLATION AT CRENLO'S PLANT IN FLORENCE	
RobotStudio version:	2.0 with ArcWeld PowerPac
Robot:	2400L (seven)
Robot Controller:	S4Cplus
Start-up time:	Six months including planning and training at ABB
Pay-back time:	9–10 months