Robotics

ABB Laser Cutting Software
High precision robot laser cutting software

Greater manufacturing flexibility, lower capital investment

Robotic laser cutting generates high quality end products, comparable to using traditional five-axis cutting machines. Laser cutting using robots offer greater manufacturing flexibility – at 35 percent* lower capital investment.

Modern ABB robots are used for high precision laser cutting. This is possible through a combination of ABB robot features and advanced cutting software products, RobotStudio Cutting PowerPac and RobotWare Cutting, developed specifically for robotic laser cutting.

Using robots for laser cutting offers substantial cost benefits compared to using laser cutting machines. Robotic laser cutting reduces capital investment by up to 35 percent* and uses less floor space.

Easy to program, easy to use
It is easy to program even complex paths and shapes with an ABB robot. RobotStudio enables your robots to be programmed offline, which greatly reduces production downtime. Operational stoppages are also reduced, as any potential programming error will be detected in a computer simulation rather than on the factory floor. The RobotStudio Cutting PowerPac allows robot programmers to generate programs based on geometry features and CAD models, simulate and optimize cutting programs, set up signal interface and manage process data. The software also contains best practice management through laser parameter tables that can be re-used and extended as an experience database.

The RobotStudio Cutting PowerPac is seamlessly integrated with ABB's advanced robot controller software, RobotWare Cutting, which is a set of sophisticated tools for tuning, calibration, equipment integration and program generation. RobotWare Cutting has a number of intuitive user interfaces that simplify the programming of advanced laser cutting applications.

RobotWare Cutting is compatible with most common laser cutting equipment brands and is easy to tune, calibrate and integrate with other machines and tools.

Learning by doing
When the robot is cutting it learns by doing. Every time it is cutting the same pattern again, it will become more accurate thanks to ingenious learning algorithms. Your robots may also automatically calibrate themselves when necessary, using ABB's BullsEye automatic tool calibration station, which requires no operator intervention.

Rapid changeovers
Robots improve plant productivity, thanks to their outstanding versatility. Six-axis technology allows a robot to carry out more advanced motions than a five-axis machine. In many cases, this means that one or more costly operations can be omitted, which makes the overall production process more efficient.

Robots are capable of switching rapidly and automatically between different product series. This opens up possibilities to upgrade your plant to a modern and flexible production facility, where even short series production can be made profitable.

Summary of benefits
High quality end products
Quality comparable to traditional five-axis cutting machines

Easy to program
Advanced software that overcome the difficulty to program complex paths and shapes

Easy to commission
Sophisticated features makes the laser cutting process easy to tune, calibrate and integrate with other machines and tools

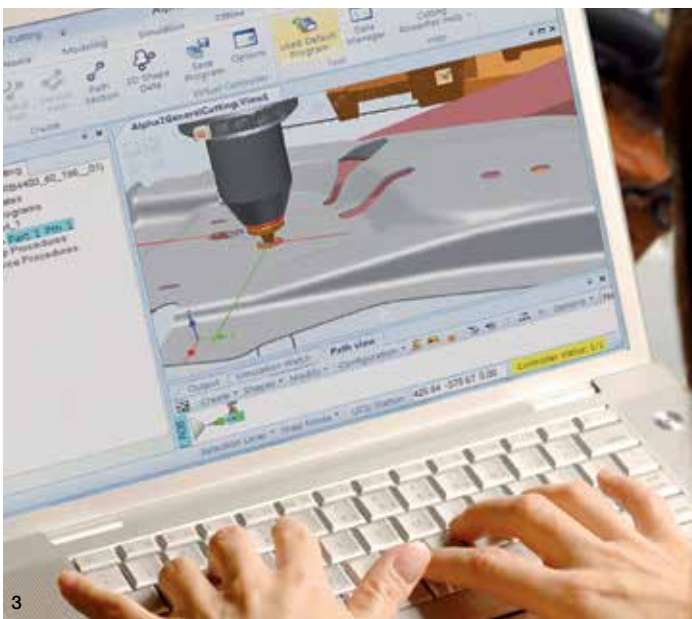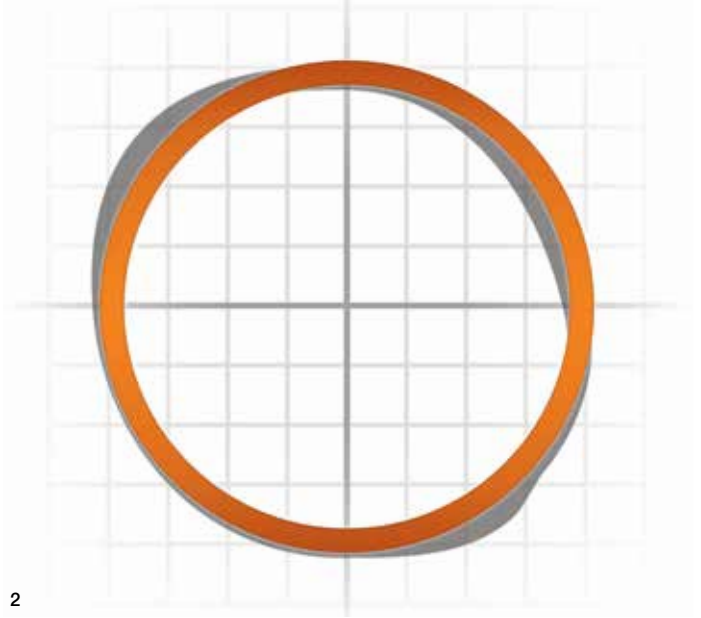**Lower capital investment**
Lower capital cost compared to laser cutting machines

Greater manufacturing flexibility
Robots are the most flexible and versatile solution for manufacturing

* Actual investment savings compared to 5-axis cutting machines depend on customer specific condition and requirements.

1. ABB's FlexPendant HMI with RobotWare Cutting provides an intuitive graphical user interface that is fully customizable to the user's requirements. | 2. Iterative learning control (ILC) uses advanced algorithms that allow robots to gradually learn how to improve their path accuracy. | 3. RobotStudio is a graphical programming environment that allows robots to be programmed offline, reducing downtime while minimizing the risk of programming error. | 4. BullsEye is a device that is used by a robot to automatically calibrate its arm movements during operation.

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