Global Resources For Global Customers

Global Flex Finishing
Force Control for Machining Applications

An easy-to-use technology for flexible and efficient production

Take the robot by the hand...

...and with just a few clicks...

...arrive at a new dimension of robot intelligence for the finishing process.

Please find your ABB contact at

www.abb.com/robotics
The traditional way in which a user programs a robot is to define the path and the speed. This will be constant, independent of the process forces. If the path does not coincide with the surface and dimensions of the part, you will instantly have quality problems and potential damage to the tooling. This is a known fact in the robotized finishing process. Users have spent a lot of time trying to correct these deficiencies and additional flexible toolings and servo axes were often needed. Three new functions add a new dimension to the use of robots in machining operations:

- **FC Graphical Programming Interface**
  - The robot will be made “soft”, and the operator will be able to move the robot by hand to the correct positions defining the path and save these. The correct positions on the work piece (part) will only need to be accurate within a few millimeters. The manually taught paths will now be used as the basis for Automatic Path Learning. The robot will run FC Pressure functionality and follow the surface/edge and at the same time record the accurate path.

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- **FC SpeedChange**
  - The investment made will lead to better time advantages, enabling the customer to focus on the application /process to be run. Buying this option will eliminate the basic set-up of the system to be run. The high option will eliminate the basic set-up of the system to be run.

**The benefits of Flex Finishing are:**
- Easier to use – faster integration.
- Quality improvement in production.
- Improved working conditions.
- Lower costs.
- Higher productivity.
- Better process results.

**Function Package Force Control for Machining Applications**

Function Packages as a starting kit for those customers who would like to integrate the application/process themselves. The offer includes mounting of the sensor, testing and verification, as well as having the cable package integrated on the robot. The basic Function Package includes:

- IRB Machining PC
- Graphical User Interface (GUI)
- DAQ Board
- Force/Torque sensor
- Cable package
- Assembled, tested and verified

**The Flex Finishing Cell represents a standardized, verified robot solution in the form of a robotized cell, which can be programmed for different tools and adapted to different components and work objects.**

### Flex Finishing, a globally available solution developed by ABB for...

**Typical materials**
- Steel
- Stainless steel
- Aluminum, magnesium
- Wood
- Plastic
- Glass

**Typical production processes**
- After CNC machining, to cut secondary flashes
- Debulking after die-casting
- Debulking, grinding and polishing
- For rounding of sharp edges

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### Flex Finishing Cell

**ABR Robo Automation has developed an innovation called Flex Finishing Cell, a complete package which includes:**

- an IRB 140F industrial robot
- Function Package Force Control Machining
- a manual 2 station turntable
- 4 motors, high, 4 motors wide base plate including cell housing
- the spindle
- Tool buffer for up to 5 tools
- Graphical User Interface (GUI)
- Human Machine Interface (HMI)

The Flex Finishing Cell represents a standardized, verified robot solution in the form of a robotized cell, which can be programmed for different tools and adapted to different components and work objects.

### Main Cell Data

- **Weight**: 1010 kg
- **Supply connections**: 400V/50Hz
- **Dimensions (max.)**: 1200x1000x1500
- **Tool changer**: SKI 11.5

### Main Cell Data

- **Total power**: 50.000 rpm
- **Revolutions (max.)**: 3.3kW
- **Spindle Power**: 50.000 rpm
- **Supply connections**: 6bar (without oil, dry)

### Main Cell Data

- **Weight**: 2000 kg
- **Dimensions (max.)**: 1200x1000x1500
- **Tool changer**: SKI 11.5

### Main Cell Data

- **Total power**: 50.000 rpm
- **Revolutions (max.)**: 3.3kW
- **Spindle Power**: 50.000 rpm
- **Supply connections**: 6bar (without oil, dry)