

TECHNICAL ATTACHMENT

Nortech Engineering and Automation

Reference – Black & Decker

Document – NE001



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CONTACT DETAILS

Project description **Black & Decker**
FlexLoader™ FP300 - for automatic and flexible machine tool
tending

Date **22/10/2021**
The quotation is valid for 30 days from the quotation date.

Customer **Nortech Engineering & Automation,**
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The quotation with attachments may not be copied or handed over to third party.

DESCRIPTION OF STANDARD EQUIPMENT

FLEXLOADER™ FP300



The FlexLoader™ FP 300 is a standard equipment for automatic feeding of unsorted parts with a seeing robot. The equipment can separate and feed virtually all types of parts. Parts are poured out onto the FlexLoader™ FP 300 buffer conveyor belt. Via different transport steps parts are separated onto the camera conveyor belt where a camera takes pictures.

ABB's vision system FlexLoader™ Vision identifies the position of the part and then guides the robot to pick up the part from the conveyor belt. The part can then be correctly positioned for the next step in the process. ABB's patented collision monitoring system ensures that collisions are avoided between grippers and parts too close to each other or on top of each other.

More information: <http://new.abb.com/products/robotics/application-equipment-and-accessories/machine-tending-packages/flexloader-fp-300>

FlexLoader™ Vision



The FlexLoader™ Vision system has been developed to guide ABB industrial robots during material handling in a user-friendly way. A proven system with outstanding performance to meet the industry's demand for high speed, short teach-in times and reliable production.

ABB offers a software that identifies the component's location and orientation from the picking area and guides the robot with precision in the robot cell. The FlexLoader™ Vision system can handle an unlimited number of components with various sizes and complex geometries without any need for mechanical fixtures which reduces cost and complexity.

The main benefit is to increase the spindle utilization of the machine tool, and to save time and effort for the operator in order to handle the robot cell. The control and communications with the robot are tightly integrated into the software. A complete teach-in is very simple and intuitive from beginning to end. With one of the easiest operator interfaces to use on the market, teaching of a new component is possible in less than 10 minutes.

The FlexLoader™ Vision system is able to communicate to a variety of camera sensors. It can be used for both 2D and semi-oriented 3D applications. The system reverts complex 3D images to well-known 2D images in order to increase the usability for the operator. No CAD-files are required to teach-in new components.

Setup and Teach-In

In principle, no mechanical changeover at shifting article is needed (the operator may possibly need to replace the gripping fingers at the robot). Changing the components is done by the operator selecting article number in FlexLoader™ Vision and starting the machine. The correct settings are automatically loaded into the robot, camera systems and PLCs. Switching between different components is calculated at less than 5 minutes. Learning new components in FlexLoader™ Vision is estimated at about 10 min. The times above are based on previous installs and where the operator has adequate knowledge of the equipment. Programming the robot and test run will be added.

ABB ROBOT

ABB is a leading supplier of industrial robots, robot software, equipment and complete application solutions. We're at home in 53 countries and have installed more than 300,000 robots, supported by the broadest service network and offering in the industry.

IRB1600



This offer includes an ABB IRB1600 6kg with 1.45m reach robot. See ABB's webpage for more information about this robot:

<https://new.abb.com/products/robotics/industrial-robots/irb-1600>

GRIPPING

Not included in this offer

SCOPE OF SUPPLY

Pos	Description of quoted equipment	Comments
1.	3 pc FlexLoader™ FP 300 with FlexLoader™ Vision1	With fast ejection / emptying of parts and standard grey camera belt
2.	6 pcs Robot IRB 1600-6/1.45	MultiMove system Collision detection Standard robot pedestal Standard dress pack
3.	CE marking 2B	
4.	Documentation, 1 complete set	Digital format
5.	FP300-101.	Brush for better separation of details

INSTALLATION

Supplied by Nortech Engineering & Automation

SAFETY

ABB provides a “Declaration of Incorporation” (MD 2006/42/EC Annex II B) for delivered partly completed machinery. The customer must take overall responsibility for the robot cell. Risk assessment and safety solution for the overall declaration of conformity is not included.

TIME SCHEDULE AND DELIVERY CONDITIONS

PRELIMINARY TIME SCHEDULE

Occasion	Preliminary time after technically clear order
Delivery to Nortech Engineering & Automation	16 weeks

NORTECH RESPONSIBILITY

- Connection and interface to Machine Tool if any
- Installation and commissioning at customer site
- Setup and configuration of FP300
- Final programming of vision system and robot
- Auto door of Machine tool in any
- Overall cell responsibility

The equipment will be delivered to site via lorry and it is assumed that Nortech will have facilities to unload the lorry and site / install the cell in location in front of the machine tools.

The interface included with the cell will be via profinet - it is expected that the machine tool that this cell is to be installed with will be equipped with a suitable profinet interface and autodoor that can be controlled by the robot over profinet I/O.

SAFETY

ABB provides documentation CE declaration 2B. In this quote, no risk analysis and security solution for the overall CE marking is included.

The timetable and the transfer timing assume that the client provides input data and responses by agreement and that the transfer of the vital components and equipment is not delayed. Delay of inputs or responses, as well as vital components can result in significant delays depending on our occupancy status.

WARRANTY AND SERVICE

Warranty for faults on equipment is 12 months, for fabrication and material faults. Warranty is not valid if maintenance is not done properly. It is also not valid for wear out parts.

Warranty is available during normal working hours; overtime compensations will be added for work at other working hours.

Call out wait time for service personnel is normally less than 24 hours. This is only if ABB has received report of faults during normal working hours.

Free telephone support during warranty time and free remote connection support (if the machine is connected for this remote access specified in this quotation) is included. ABB is applying the international general conditions ORGALIME SE 01.