

FlexLoader™ SC 6000

Setting new standards in flexible machine tool tending



ABB's FlexLoader SC 6000 sets the standard in flexible machine tool tending - increasing machine utilization by as much as 60%, while reducing operational costs.

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01 FlexLoader SC 6000
with IRB 4600 and
extended panels

A leader in the development of automation solutions, ABB's FlexLoader SC 6000 sets the standard in flexible machine tool tending. This robotic solution increases machine utilization by as much as 60%.

The FlexLoader SC 6000 is available in two variants, with the IRB 2600 robot (20kg/1.65m reach) and with the IRB 4600 robot (60kg/2.05m reach). Both come complete with a robot controller inside its fully integrated control cabinet. The FlexLoader SC 6000 is a pre-engineered, well-tested and reliable automation solution.

Designed to load and unload machine tools using vision guided robotics, the integrated solution is capable of handling a variety of additional manufacturing operations such as marking, deburring and cleaning with air. The FlexLoader SC 6000 can run free from operator supervision for up to eight hours, depending on the part size and cycle time, thanks to an internal buffering system.

The FlexLoader SC 6000 is compatible with a wide range of machine tools, for example, horizontal and vertical lathes, machining centers and 5-axis machines and grinders. Its numerous interfaces can be hard-wired with 24V I/Os for easy communication with a machine tool.

Capable of handling both small batch and volume production, the FlexLoader SC 6000 comes equipped with a choice between a two- or three-finger gripper and six standard plug-and-play options, including: two separate deburring tools, a re-grip table, marking unit, turn station, air cleaning box and a corridor/ passage.

Vision-guided robotics

The FlexLoader SC 6000's built-in vision system is specifically designed for robot guidance. 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 to use operator interfaces on the market, the teaching of a new part is possible in less than 10 minutes.

With the aid of vision-guided robotics, the FlexLoader SC 6000 becomes even more flexible; it is able to recognize variations in part size and varying geometrical shapes. Additionally, the parts do not need to be fixed in a particular position to be identified, picked up and placed by the robot, which reduces costs and complexity.

Components and features

- In-conveyor and out-conveyor: internal buffering system that supports the production of a substantial number of parts without manual loading
- FlexLoader Vision easy-to-use camera system and associated illumination for increased flexibility
- 6-axis industrial robot, IRB 2600 or IRB 4600; compact design with payload capacity of 20 or 60 kg
- Integrated control cabinet with robot controller and electrical equipment; pre-built and wired
- Drawer for statistical sampling allows integrated quality control and part analysis
- Operating panel and robot programming unit
- Retractable sliding door

Customer benefits

There are three main benefits to using robots on the machine tool floor - maximization of manufacturing productivity, reduction of operational and capital costs, and improved health and safety.

Maximization of manufacturing productivity

When compared with manual labor, robotic automation increases the machine tool utilization up to 60 percent. The nearly immediate return – in some cases less than 12 months – is significant and tangible. The FlexLoader provides reliable and predictable output from the robot and machine tool. It facilitates higher

machine tool utilization, up to a phenomenal 90 percent compared with traditional manual machine tools, which are in the range of 50 percent. This results in a much faster return on investment and gives a sustainable competitive advantage.

Reduction of operational and capital costs

The FlexLoader is a standardized yet flexible solution that reduces operational and capital expenditures, allowing a single person to operate several machine tools simultaneously. With the improved utilization and more efficient use of existing resources, the need for additional capital investment in new production equipment and peripherals declines.

Improved health & safety

The self-contained nature of the FlexLoader improves working conditions by drastically reducing workplace injuries related to heavy lifting or exposure to hazardous conditions, including the presence of coolants, sharp edges, burrs, tooling, and other dangers.

Included in FlexLoader SC 6000

- FlexLoader vision for machine tool tending
- Calibration tools
- IRB2600 or IRB 4600 robot depending on the payload and reach
- Standard options for pre and post-processes

Technical information

	IRB 2600	IRB 4600
Length with conveyor (mm)	5 810	5 810
Width (mm) (without corridor)	2 000	2 000
Height (mm)	2 717	2 717
Height (mm) (without camera and lightning)	2 207	2 207
Weight (kg)	2 260	2 300
Robot model	IRB 2600	IRB 4600
Robot payload (kg)	20	60
Robot reach (mm)	1 650	2 050
Certificates	UL/CSA, Prep. for CE labelling 2B	UL/CSA, Prep. for CE labelling 2B
Mains voltage	220V – 600V	220V – 600V
Operating temperature	Max 45 C (std) Max 52 C (option)	Max 45 C (std) Max 52 C (option)
In-conveyor width and length (mm)	795 mm x 3 000	795 mm x 3 000
Out-conveyor width and length (mm)	795 mm x 4 000	795 mm x 4 000
Max object/workpiece height (mm)	270	270
Max belt load (kg)	500	500
Machine tool interface	Safety interface, Digital 24V I/O, 16 IN and 16 OUT	Safety interface, Digital 24V I/O, 16 IN and 16 OUT

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