

Automatic tool changer with anthropomorphic robot RTC50

Within its development plans, Alesamonti has studied an automatic tool changer based on an anthropomorphic robot with six axes of motion. This innovation allows to exploit the wide capacities of an anthropomorphic robot on a machine tool.

RTC50 was devised as an independent tool changing unit; "independent" means it has no mechanical connection to the machine. The only reference with the machine consists in the coordinates in the machine system of the horizontal/vertical position of the spindle nose for the automatic tool change. Therefore the RTC50 is an accessory which can be used also for machines already installed.

The performances assured by the application of an anthropomorphic robot for the tool changing are the following:

- use of tools with max. weight 20 kg, max. diameter 125 mm and typical length of 300 mm;
- tool changing time less than 20 seconds;
- possibility to change the tool in every position of the head: vertical, horizontal and inclined;
- possibility to control the number of tools in 40-tool-modules up to 200 tools;
- possibility to check the tool integrity after the machining (optional) by means of a machine vision system; if the tool is damaged, it will be placed in a certain area and the operator will be informed about the non-conformity of the tool;
- possibility to install a switching probe to check the presence of the workpiece or parts of it, as well as its position with reference to the machine axes;
- possibility to use the robot for other functions outside the machining;
- possibility to adopt tool identification systems with RFID techniques.



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