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FANUC Robotics Demonstrates
Intelligent Machining at IMTS 2008 **For Immediate Release**

ROCHESTER HILLS, Mich., Sept., 8, 2008–FANUC Robotics America, Inc. will demonstrate intelligent machining in two cells that highlight the M-710*i*C and LR Mate 200*i*C robots, *i*RVision®, the new FS-10*i*A force sensor, and Dual Check Safety (DCS) during IMTS 2008 at McCormick Place in Chicago, Sept. 8-13, booth #A-8418.

Intelligent Compact Robot Cell and Machining Cell

The "Compact Robot Cell", a miniature version of an actual machining and inspection system running at FANUC LTD, will work as follows: An M-710*i*C/50 equipped with *i*RVision 3DL detects parts located in a pile. The robot picks the correct part and presents it to a FANUC Alpha T-21*i*FL ROBODRILL. An LR Mate 200*i*C using the new FANUC FS-10*i*A force sensor inspects parts to ensure they have the correct hole diameters. The system incorporates DCS, which implements safe motion technology with no additional hardware requirements.

The second intelligent machining cell will highlight robotic part picking, load/unload and inspection: An M-710*i*C/50 with *i*RVision 3DL picks raw parts from a wheeled cart, takes them to a vision inspection station for error checking and places them on a transfer stand. The M-710*i*C/70T Toploader robot, also with *i*RVision 3DL, picks and loads a part from the stand into the first of two FANUC Alpha T-14*i*F ROBODRILL machines. The Toploader then unloads the semi-finished part from the first ROBODRILL and loads it into the second one. Upon completion, the M-710*i*C/70T transfers the finished part to a part drying stand, from which a second M-710*i*C/50 robot with *i*RVision 3DL picks and then manipulates it against a compliant deburring tool. Finally, the second M-710*i*C/50 robot places the completed part onto a second transfer stand. All three robots use FANUC Dual Check Safety Speed and Position Check software.

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Dual Check Safety (DCS) Speed and Position Check Software

Prior to the application of safety rated robot software, all safeguarding of the robot needed to be external, either as a safety rated limit switch or cam system, safety rated area scanners, or other devices to limit robot travel or enhance protection. DCS safety rated robot software allows the safety design of the robot system to use the robot itself for some of the safety functions.

The most significant benefit of DCS Speed and Position Check is in applications where the travel of the robot needs to be restricted due to floor space or process limits that are less than the full reach of the robot. Restricting the robot motion in Cartesian space means the robot can be restrained to exactly the area in which it works; something that is not possible with the current systems that limit robot motion externally using limit switches.

“By moving some of the safety functions to within the robot, customers will realize significant savings in floor space, flexibility in system layout, reduced hardware costs, and improved reliability,” said Claude Dinsmoor, general manager, controller product development, FANUC Robotics.

In addition, safe "zones" can be enabled and disabled from an external source such as a safety PLC. Designing a system with multiple zones means an operator can safely enter and leave the workspace of the robot.

“This streamlines the design of robot cells because it prevents the robot from entering the load area when an operator is present,” added Dinsmoor. This type of application is possible with existing technology, but it is typically difficult to setup, expensive to implement, and requires more floor space than a system using DCS.”

Integrated (built-in) Vision and Force Sensing

FANUC Robotics’ intelligent robots with integrated force sensors provide 3-D assembly with six degrees of freedom. The new FS-10*i*A force sensor is an ideal solution to automate small-part assembly, or for testing products requiring delicate force sensing. Small, but tough and accurate, the FS-10*i*A is suitable for the LR Mate 200*i*C mini-robot.

The FANUC *i*RVision system is a ready-to-use robotic vision package, available on all FANUC robots, requiring only a camera and cable – no additional processing hardware. It has a 2D robot guidance tool to accomplish part location, error proofing, and other operations that normally require special sensors or custom fixtures. For robotic vision processes that exceed the capability of 2D vision systems, FANUC Robotics offers an integrated 3D vision system.

M-710*i*C Robot Series

The M-710*i*C robot series offers payloads ranging from 20 kg to 70 kg, and a reach of 1360 mm to 3110 mm. Multiple mounting methods including floor, ceiling, angle and wall, make it possible for users to have better access to unusual work pieces.

The M-710*i*C/70T robot has a 70 kg payload, a 1900 mm reach, and is available in either an under-slung or side-slung configuration. The under-slung configuration suspends the robot arm underneath the rail structure and offers a symmetrical work envelope on both sides of the rail while the side-slung configuration suspends the robot arm off the side of the rail structure and allows for maximum vertical reach and maximum stroke.

With a wide selection of rail lengths, a payload range of 10 to 200 kg, and reach of 1.5 to 2.2 meters, the Toploader series meets virtually any application need. FANUC Robotics offers the most versatile line of robots in this class.

LR Mate 200*i*C Intelligent Robot

The LR Mate 200*i*C robot, offers maximum performance in a light, efficient, accurate and nimble (LEAN) package. It is designed to meet the automation needs of a variety of industries including electronics, medical devices, food, metals, plastics, and packaged and consumer goods. Its compact design and flexibility to quickly adapt to small lot sizes, new styles and other modifications provides manufacturers an affordable solution for small part, flexible production.

The six-axis, LR Mate 200*i*C robot rates ‘best in class’ for its wrist load capacity, repeatability, work envelope, and speed. Ideal for high-speed part handling, machine tending, assembly and material removal, the slim and lightweight robot can be mounted in a variety of positions including floor, tabletop, inside machines, angle and invert, which maximizes flexibility for small and narrow workspaces.

FANUC Robotics America, Inc. designs, engineers and manufactures industrial robots and robotic systems for a wide range of applications including arc and spot welding, material handling (machine tending, picking, packing, palletizing), material removal, assembly, paint finishing and dispensing. The company also provides application-specific software, controls, vision products, and complete support services. After 25 years of success, FANUC Robotics maintains its position as the leading robotics company in the Americas. A subsidiary of FANUC LTD in Japan, the company is headquartered in Detroit, and has facilities in Chicago; Los Angeles; Charlotte, N.C.; Cincinnati and Toledo, Ohio; Toronto; Montreal; Aguascalientes, Mexico; and Sao Paulo, Brazil. Over 200,000 FANUC robots are installed worldwide. Contact FANUC Robotics at www.fanucrobotics.com or by calling 1-800-*i*Q-ROBOT, option 5.

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