FANUC America Demonstrates
Intelligent ROBODRILL Machine Tending
with FANUC Robots at IMTS 2014

ROCHESTER HILLS, Mich., Sept. 8, 2014 – FANUC America Corporation demonstrates a variety of ROBODRILL machine tending applications with FANUC intelligent robots and the next generation iRVision® 3DA/400 Area Sensor during IMTS 2014, Sept. 8-13, at McCormick Place, Chicago, booth #S-8919.

FANUC will feature the following ROBODRILL machining demonstrations:

Bin Pick ROBODRILL Machining

An LR Mate 200iD robot equipped with FANUC’s new iRVision 3DA/400 Area Sensor locates and picks randomly oriented uncut slugs from a bin. The 3DA/400 Area Sensor provides 3D location of the slugs in the bin. The robot picks an uncut slug and loads it into the first of two high-speed ROBODRILL α-D14SiA5 machine tools for the first half of a machining cycle. The FANUC ROBODRILL features easy automation with tight integration and easy connection with the robot. The ROBODRILLs also feature Servo Doors, which are controlled by the auxiliary axis of the robot, enabling the robot to anticipate door opening and closing. Once the first machining cycle is finished, the ROBODRILL servo door opens and the LR Mate 200iD unloads the slug from the first ROBODRILL. It loads it to the second ROBODRILL to complete machining. The second ROBODRILL finishes a completed small engine camshaft. The robot unloads the finished part and places it in a bin out of the system.

FANUC’s new high-speed iRVision 3DA/400 Area Sensor is the compact version of FANUC’s iRVision 3D Area Sensor. The 3DA/400 Area Sensor is designed for use with a small or medium size robot with smaller containers measuring less than 400mm long x 300mm wide x 300mm high.

“This system features two high precision FANUC ROBODRILL Small Machining Centers and the fast and compact FANUC LR Mate 200iD Robot, both operating together to provide the highest level of efficiency and quality of parts,” said Lou Finazzo, director, ROBODRILL sales, FANUC America Corporation.

Progressive ROBODRILL Machining

A rail mounted FANUC M-20iA/20MT Toploader Robot equipped with iRVision 2D simulates machine tending of three FANUC ROBODRILL α-D21MiA5 machine tools. The robot uses iRVision 2D to locate a raw or machined automotive part (valve body

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type) off of a belt conveyor, picks and moves it to the first ROBODRILL. In a high speed synchronized motion, the ROBODRILL’s Servo Doors open while the robot quickly moves into the machine. The robot is equipped with an IP67 wrist and J3 arm and incorporates an IP67 rated dual part end-of-arm tool to exchange the raw part for a partially machined part. The robot quickly exits the first machine through the high speed synchronized servo door and continues to load and unload parts to a second and third ROBODRILL α-D21MiA5 until machining simulation of the part is complete, and the cycle repeats.

The demonstration features ROBODRILL α-D21MiA5 DDR-T four axis coordinated machining with through-spindle coolant, milling (face & thread), drilling, high-speed rigid tapping and deburring. Combining FANUC high-speed robots, CNC, and ROBOMACHINEs provides an ideal solution for high-production machining.

FANUC 3D Area Sensor for Bin Picking

“FANUC’s latest high-speed 3D Area Sensor is ideal for bin picking applications,” said Bernhard Walker, material handling engineer, FANUC America. “We’re showing manufacturers how easy and practical robot vision can be, even for bin picking, which has traditionally been a very challenging robotic process.”

The high-speed 3D Area Sensor provides a detailed 3D map in one quick vision shot. It’s an easy-to-use vision tool allowing bin picking setup through the iPendant in a matter of minutes. The 3D Area Sensor is available in two variants – The 3DA/1300 for a wider range of view, and the compact 3DA/400 for small to medium size applications. Both models are equipped with a higher-resolution mode for greater 3D location precision. “All of the hardware and software is designed by FANUC specifically for FANUC robots, allowing us to provide our customers a wide range of solutions to meet their production needs,” added Walker.

FANUC iRVision

FANUC iRVision is a truly integrated, plug-and-go vision system that runs on the standard CPU of every FANUC R-30iB controller without any additional hardware. A single source solution developed and supported by FANUC, iRVision offers easy setup and operation for factory environments requiring 2D and 3D guidance, error proofing, visual tracking, and quality control – all with FANUC’s world-renowned reliability.

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FANUC Intelligent ROBODRILL Machine Tending

FANUC LR Mate 200iD Robots

The family of LR Mate 200iD robots is a versatile solution for a wide range of manufacturing operations that require access into small spaces. A very slim arm about the same size as a human arm, and a bottom cable exit option minimize interference with peripheral devices. The LR Mate 200iD robots offer a “best in class” work envelope for both upright and invert mount installations. The LR Mate 200iD robots are also available with ISO Class 4 clean-room and food-grade variants for primary (unwrapped) food handling and healthcare packaging applications.

LR Mate 200iD Features and Benefits

- Slim arm and compact foot print minimizes interference to peripheral devices in narrow spaces.
- Four to seven kg wrist load capacity with six-axis articulation.
- Best in class work envelope simplifies system layout.
- Fastest joint axes speeds maximize system throughput.
- Integrated 24VDC power, signal and air for easy end-of-arm-tool connection.
- Integrated thru-arm cable option for iRVision, force sensing, Ethernet and auxiliary axes.
- Flexible mounting (upright, invert, angle).
- High rigidity and the most advanced servo technology enable smooth motion at high speeds.
- Easy integration into machines.
- Features lightest mechanical unit in its class.
- IP67 rating allows operation in factory environments with dust and oil mist.
- New LR Mate 200iD/4SC clean-room model is ISO Class 4 (Class 10) clean-room certified for electronics, pharmaceutical and food applications. It features a white FDA compliant coating, stainless steel wrist, NSF-H1 grade grease on all joints to provide reliable performance in demanding production environments, including rigorous sanitation procedures.

Next Generation R-30iB and R-30iB Mate Controller

The FANUC R-30iB and R-30iB Mate Controller use high-performance hardware and the latest advances in network communications, integrated iRVision, and motion control functions. The R-30iB Controllers feature FANUC’s exclusive and easy-to-use iPendant with 4D graphics. The iPendant displays process information and the actual process path directly on the iPendant screen, enabling easier setup and troubleshooting.

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Based on the latest FANUC Series 30iB CNC Controller, the R-30iB and R-30iB Mate Robot Controllers are compact, providing customers a significant space savings. The R-30iB Mate Controller, available with a compact rack-style open-air controller cabinet, or an industrial grade standard Mate cabinet, is very energy efficient and requires less power consumption due to its availability in both single-phase and three-phase versions. The R-30iB Controller offers an optional power regeneration feature.

FANUC ROBODRILL Features & Benefits

- Highest quality and shortest machining times for all industries requiring ultra high precision and surface quality.
- Available in three models for multiple part types including 300 mm, 500 mm and 700 mm table length models.
- Dynamic spindle options with high-speed tool change reaching up to 24,000 RPM.
- Optimal acceleration and deceleration control for shorter cycle times.
- Direct drive axes enable high speed and acceleration and high precision machining.
- Large table load capacity – Up to 300 kg.
- Safe operation features including thermal compensation and fast self-diagnosis.
- Automatic fault recovery and tool breakage control for consistent quality without downtime.
- Through tooling coolant for continuous drilling.
- Contour control, automatic thermal compensation and machine mode setting options for high precision and accuracy.
- Standard FANUC CNC installed.
- Variety of intelligent software functions for fast, high-precision machining with ultra exact position reproducibility.
- Complete turnkey systems with FANUC CNC and easy robot integration for machine tool load/unload with single or multiple robots.
- Integrated communication protocols for operation of robots and ROBODRILL from the same controls.
- Large color LCD with compact operator panel with USB port and memory card slot for easy file transfer.
- ROBODRILL PMC for peripheral equipment control.
- Spindle power up to 26 kW (35 hp) and torque up to 80 Nm (59 lb-ft).
- 4th and 5th axis options for simultaneous machining and cutting through high-speed indexing with additional one and two-axis rotary table options.
- Rigid cast iron c-frame design with high-speed automatic tool change.
- Intelligent design for overall energy conservation and efficiency.

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About FANUC America Corporation

FANUC America Corporation is a subsidiary company of FANUC Corporation in Japan, and provides industry-leading CNC systems, robotics, and ROBOMACHINEs. FANUC's innovative technologies and proven expertise help manufacturers in the Americas maximize efficiency, reliability and profitability.

For more information about FANUC America Corporation, please call: 888-FANUC-US (888-326-8287) or visit our website: www.fanucamerica.com. Also, connect with us on YouTube, Twitter, Facebook, Google+ and LinkedIn. FANUC America is headquartered at 3900 W. Hamlin Road, Rochester Hills, MI 48309, and has facilities in: Atlanta; Boston; Charlotte; Chicago; Cincinnati; Cleveland; Dallas; Indianapolis; Los Angeles; Minneapolis; Montreal; Pine Brook, NJ; San Francisco; Toronto; Buenos Aires, Argentina; Sao Paulo, Brazil; and Aguascalientes, Mexico City and Monterrey, Mexico.

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