

Editorial

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New record

We can look back on a year that was highly satisfactory in several respects: our industry has been more successful than ever, both in terms of innovative strength and business growth. The record figure of 381,335 industrial robots sold worldwide in 2017 speaks for itself. In this connection it is interesting to note the areas of application of the newly installed robots: automated handling has become the most important submarket over all industries.

As evidenced by Automatica in June, the hot topics of networked Industrie 4.0 environments and collaborative robots have also left their mark on the industry.

Industrie 4.0 in real time

A key objective in the realization of automated Industrie 4.0 scenarios is the collection and analysis of relevant process and system data from networked production systems in a scalable database in real time, or its preparation for external processing. The procedure is visualized directly and comprehensibly in a software platform.



With the YASKAWA Cockpit Yaskawa is developing a new central software platform for networked production environments. (Source: Yaskawa)

With the YASKAWA Cockpit Yaskawa is developing a new, central software platform for networked production environments. In addition to the visualization functions, the current status of each machine can thus be mapped in real time and correlated with other data sources, e.g. for the planned production volume.

For the networking of components and structures with the software we consciously opted for OPC UA. After all, there must be a reason that this communication standard is preferred by VDMA for implementing machine-to-machine communication (M2M) and other Industrie 4.0-specific applications.

The YASKAWA Cockpit is a key element of our Industrie 4.0 “i³ Mechatronics” solution. Here Yaskawa has combined classical mechatronics, information and communications technology with digital solutions such as artificial intelligence, Big Data and the Internet of Things. “i³” stands for “integrated – intelligent – innovative”.

Trend towards ever smaller manipulators and controllers

On the hardware side there is a continued trend towards increasingly small manipulators and controllers that ensure even greater flexibility, particularly for handling tasks. One of the key applications is the handling of small workpieces and components, and of course assembly operations in small production machines. Due to their compact design, small manipulators can be employed here in an extremely space-saving manner.

In light of the above, Yaskawa has also extended its robot portfolio to include what is now the smallest Motoman model: the new MotoMINI has a range of 350 mm and a lifting capacity of 500 g. The compact, lightweight, high-speed 6-axis robot combines fast cycle rates with a high repeatability of 0.03 mm. This makes the MotoMINI ideal not only for handling small workpieces and components, but also for assembly work in small production machines. Due to its compact design, it can be deployed where space is at a premium. On the smallest footprint, this robot can move components in all directions and around all three axes. This freedom of movement also enables more complicated, three-dimensional handling operations.

It thus reduces the space needed for the production line while boosting productivity. The manipulator has a dead weight of only 7 kg: so small that, depending on operational requirements or workpiece being processed, the robot can be moved flexibly and according to the specific application.

The controller is likewise particularly small and lightweight. The MotoMINI is operated with the new high-performance Motoman YRC1000micro controller. Its hand-held programmer – the lightest in its category at only 730 g – is ergonomic and clearly arranged.



Yaskawa has extended the Motoman robot portfolio to include its smallest model: with a range of 350 mm the new MotoMINI has a lifting capacity of 500 g. (Source: Yaskawa)

“Easy teaching” for collaborative operation

The initial hype surrounding collaborative robotics has died down. Marketable technical solutions for the reliable implementation of human-robot collaboration have since become available. Our task is now to further optimize and develop the direct interaction with the operator.

We have further developed our collaborative Motoman HC10 robot accordingly: the HC10DT (DT stands for “Direct Teach”) model variant can be optionally programmed directly via the robot arm. This “Easy Teaching” is made possible by a special switch box with function buttons.



The collaborative Motoman HC10 robot can now also be programmed with a “Smart Pendant” or “Direct Teaching”. (Source: Yaskawa)

We have now introduced the next generation of programmers with the new Smart Pendant – available for all Motoman robots with YRC1000 or YRC1000micro controls. The HC10DT is also easy to program and operate per Smart Pendant, with the result that the user has to memorize less data, e.g. commands, values and the complete operating procedure. The main menu allows simple changing back and forth between the screens, as they are listed in a specific, easily traceable sequence. Besides this, the Smart Pendant gives easy access to all functions. The user retains a perfect overview of all entries in the navigation menu, and in the event of a problem will always find his/her way back to the main menu.