

New multi-axis robot from Mitsubishi Electric increases flexibility and reduces cycle times

Mitsubishi Electric is at Automatica Exhibition, Hall B2, Stand 310

Ratingen, 8th June 2010. The MELFA RV-2SDB from Mitsubishi Electric is a compact, high speed, high functionality robot with a 2kg (max. 3kg) load carrying capacity and cycle times as short as 0.6 seconds. On show for the first time in Europe at Automatica 2010, the vertical, multi-axis articulated robot arm can provide a significant productivity boost in assembly and production cells in a wide range of industries, with faster motion and unique design features to improve cycle times and an innovative construction to give greater freedom of movement over a larger motion space. Simple to program and easy to integrate, the MELFA RV-2SDB meets all modern production needs, with the flexibility to be readily redeployed as requirements evolve.

Although the robot arm is more compact than previous generations, this has not come at the detriment of reach or operating radius. The maximum reach of the robot has been extended to 504mm, and the length and shape of the arm have been specifically optimised for maximum flexibility. An innovative flap arm construction reduces the minimum work area radius to just 139.5mm. In addition, a reduced protrusion of the elbow arm lessens interference in the rear space. All of this ensures that the maximum use can be made of the working space around the robot, and allows the most compact production area layout to be achieved.

The design of the robot enables further optimisation of the working space through a unique shoulder design. The motion space of the shoulder is extended in the minus side so that it can be rotated into the space in the backward direction. This delivers a larger working area without the need to change the orientation of the robot, eliminating wasted motion and further shortening cycle times. A further design feature is the wrist section, which has been made less bulky than traditional designs, so that the arm can reach easily into narrow openings. This increases the flexibility of the robot for the widest range of application possibilities.

The swing area extends to 240 degrees both left and right enabling best use to be made of available space on the production line. With a total of 480 degrees of motion space available, the shortest motion path for any task can always be used, increasing the degree of freedom in the robot arrangement and helping to decrease overall cycle time.

Cycle times are also decreased by the significantly increased speed of the robot. Maximum combined speed is 4,400mm/sec, but axes J4, J5 and J6 in particular have been given a significant speed boost – some 10% faster than Mitsubishi Electric's generation RB-3SDB. This has been based on customer feedback and application analysis which highlights that many tasks require the robot to change its posture from one step to another. By enabling the robot to change its posture more quickly – with axes J4, J5 and J6 being key here – cycle times can be significantly reduced. Mitsubishi Electric has also focused on significantly raising the speed of the wrist section, again reducing cycle times.

With the rigid design of the arm and advanced servo control, the RV-2SDB achieves the highest degree of straight-ahead motion accuracy, with positioning repeatability to ± 0.02 mm.

For more sophisticated set-up and control, Mitsubishi Electric provides a rich selection of software programs that guide users through their start-

up phases. RT-ToolBox2 provides varied features essential for start-up, such as program editing, debugging and cycle time planning. The MELFA-Vision software makes it simple to employ a vision system on the robot, such as that supplied by the e-F@ctory Alliance Partner, Cognex. And MELFA-Works is a 3D robot and application simulator that provides powerful support for system design and preliminary study.

The wide variety of robot interfaces offered ensures a high degree of installation flexibility, as well as scalability as applications evolve. The robot comes as standard with additional axis control interface, Ethernet communications interface and encoder interface for conveyor belt following, making it easy to build a complete manufacturing system with the robot at its heart. Data input/output to and from the robot can be controlled directly from a Mitsubishi Electric GOT series operator interface without any additional programming requirement. Sample GOT graphics are provided as standard to highlight the robot's operational status in a clear, user-friendly manner, including current values, error indication and maintenance forecasts. A window containing the user manual is also included.

With the MELFA RV-2SDB being mountable in floor standing, ceiling or wall mounted configurations, its versatility to suit every application requirement is assured.

About Mitsubishi Electric

With over 80 years of experience in providing reliable, high-quality products to both corporate clients and general consumers all over the world, Mitsubishi Electric Corporation (TSE: 6503 / ISIN JP3902400005) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. The company recorded consolidated group sales of 25,5 billion Euro in the fiscal year ended March 31, 2009.

Mitsubishi Electric Europe B.V. is a wholly owned subsidiary of Mitsubishi Electric Corporation, Japan, and represents over a 30 year history of sales, service and support of automation products within the European market place.

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