

Industry: Life Science, Material Handling, Packaging
Products: Robots, Servo/Motion, Controller

Pacemaker with a sense of rhythm

The challenge: Extending existing production with handling and packaging solution for vials on two square metres

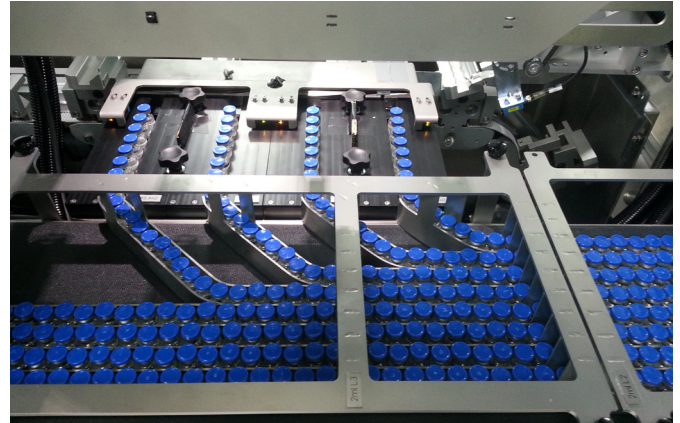
"Vial" is the technical term for the small bottles used to hold medication, for example vaccines. The contract packer of an international pharmaceutical company was seeking a solution for the supply and packing of such vials of different sizes for an existing system, but barely two square metres of floor space was available to add this facility on. The Swiss company Robotronic AG specialises in robot-aided handling systems with a minimal footprint.

The solution: Modular Robot Technology (MRT)

The acronym MRT denotes Modular Robot Technology, a modular principle specially developed by Robotronic that facilitates an extremely flexible mode of system construction. The compact basic module of the MRT cell has a footprint of 1.0 x 1.30 metres and is around 2.20 metres high. The concept comprises a complete set of components that can be assembled to meet specific requirements. Only industrial robots from Mitsubishi Electric are used in the systems.

The proposed solution for vials handling consisted essentially of two MRT cells, each with an articulated-arm overhead robot and a conveyor line with eight positioning screws driven by Mitsubishi Electric servo motors, all operated by the Mitsubishi Electric iQ Platform concept. The complete installation was composed of an upstream conveyor section for the vials and a downstream box supply chain on which the filled packing units, so-called blisters, were transported to the boxing and final packaging process. Located adjacent to this was a thermoforming machine for producing the blisters. To configure the optimum interaction between the individual areas, Robotronic had to construct the handling system and also adapt the existing systems, offering a customised overall concept with twelve Mitsubishi Electric servo drives totally.

The two robots built into the MRT solutions are responsible for handling the vials. Using vacuum grippers, they lift two rows consisting of five vials each respectively from the conveyor section and place them in the waiting blisters. The box supply chain operates in a continuous cycle without interruption, and so the preceding process must be executed at



"Thanks to the compact dimensions of the MRT and the slimline overhead robots from Mitsubishi Electric, we were able to implement the solution very well in spite of the very limited space of around two square metres. The extreme degrees of freedom of the robots offer us great flexibility with regard to installation. They work very quickly, yet with extreme accuracy, just like the servos. This is the only way that the high clock rate can be achieved."

Mike Weber,
Managing Director of Robotronic AG

a corresponding rate. The processing speed of the machine is 300 units per minute.

The result: Successful integration of proven, high performing and space saving processing cells

The dynamics of the Mitsubishi Electric servos come into their own especially in the conveyor system due to fast acceleration and high braking torques combined with a very gentle start-up and deceleration. Their high degree of precision is important in the indexed conveyor system, because the machine has to position new blisters every 300 milliseconds to keep pace with the second-by-second cycle of the box supply chain.