

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

Handling syringes on a minimal footprint

Space is often at a premium in production plants, and so new machines have to be as compact as possible. Robotronic AG specialises in robot-aided handling systems that meet the strictest of size requirements. The Swiss company works with a modular robot cell developed in house, termed MRT (Modular Robot Technology), which incorporates Mitsubishi Electric robots. The MRT basic module occupies an area that is barely the size of a euro pallet, measuring 1.0 by 1.30 metres, and is around 2.20 metres tall. It only needs to be equipped to suit the customer's requirements.

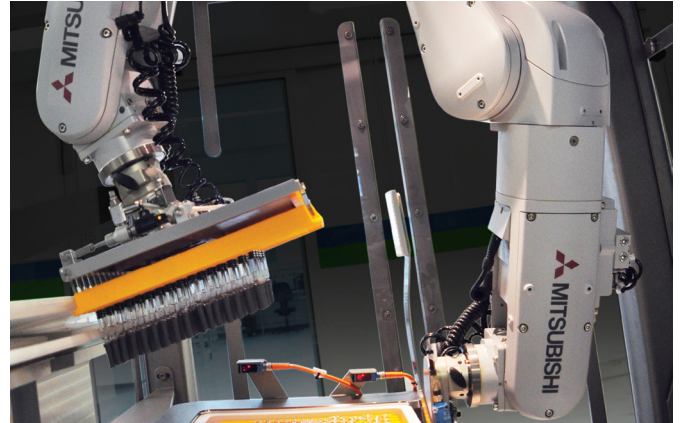
The challenge: Handling of ready-to-use syringes on minimal footprint

Robotronic has developed a handling module that supplies ready-to-use syringes to the final packaging facility for an international pharmaceutical company in Germany. A flexible solution was sought that offered the option of switching between different syringe carriers and formats, with an output of 400 syringes per minute. The installation space was around three square metres in area, and the construction time frame was four to five months.

Each syringe packing line requires a special feed, because syringes have no base on which they can stand. Special carriers are needed to transport them, the two most common of which are standardised combs and nests. For packing purposes the syringes must be removed from the carriers and supplied to the packaging system. Handling machines of this kind have been on the market for a long time, but take up three to four times as much space as the MRT.

The solution: Modular Robot Technology (MRT)

The syringe handling solution features two Mitsubishi Electric robots of the type MELFA RV-4FL. These are compact, articulated-arm overhead robots with six axes. The two industrial robots are responsible for the overall handling of tubs and carriers as well as different syringe formats, and are precisely coordinated with one another for this purpose. The carriers are contained in tubs for transportation. To supply the tubs, Robotronic has developed a rotary turret, which is based on an MRT cell measuring one metre in length and driven by a Mitsubishi Electric servo motor MR-J4 and controlled by the Mitsubishi Electric iQ Platform system.



"Robots from Mitsubishi Electric exhibit outstanding flexibility, speed and reliability over many years. The high degrees of freedom on installation are also advantageous, due for example to the overhead assembly or extreme rotary movements. The slimline design of the robots helps us to realise the MRTs in the minimum of space."

Mike Weber,
Managing Director of Robotronic AG

To achieve the same autonomy with a conveyor belt, the belt would have to be four metres long.

The Result: Successful integration of high performance handling cell

The current MRT model can index 400 syringes per minute into the emptying rail, but the solution can process up to 600 units per minute. To do this, another axis is added, likewise driven by a Mitsubishi Electric servo motor MR-J4.

What makes the Robotronic MRTs unique apart from their compact design is the possibility they offer of switching quickly between formats. Plans are also in hand to extend the switching options to a third carrier format, so-called rondo trays.