The tabletop gantry system

marc0 GantrySystem

marc0 GantrySystem is a high-precision tabletop gantry system from marco. The machine can be used in a benchtop, stand-alone or conveyor configuration for inline or batch processing. The system uses linear encoders for closed-loop position control and the dispensing tool position is monitored at all times.

The Dispensing Control Unit (DCU) controls both the robot movement as well as the dispensing process simultaneously. This synchronization is unique in the dispensing industry.

The base is a box construction, made of welded steel, stress-free annealed, and subsequently precision assembled. The surface is nickel plated. For low thermal distortion, all materials in the machine have the same thermal expansion coefficient, and positioning is kept consistent even at different temperatures.

All drives use servo motors. The weight of the tool is pneumatically balanced in the vertical direction Z for greater precision and payload capacity.

Four high-precision encoder measuring systems are integrated into the system for accurate positioning and closed-loop position control. In the Y axis, there are two encoders, so that the position of the tool is read without rotational distortion or skew.

The *marc0 GantrySystem* is suited for integration into an inline assembly line. The work surface contains mounting points for a conveyor belt or tooling to accommodate automated loading and unloading designs.

In front of the work area, there is an integrated calibration and maintenance station. These tools include a vacuum suction station for purging, a nozzle wiping for cleaning, a touch sensor for nozzle position detection and a LookUpCamera for nozzle condition inspection.

Since 2016, predecessors of this robot have been used successfully at marco for the production of an automotive sensor.

Technical data:

◆ Dimensions W/D/H [mm]: 660 x 790 x 750

◆ Travel of the axes X/Y/Z [mm]: 445 x 250 x 145

◆ Tool weight: up to 1 kg

◆ Weight: 65 kg

◆ Acceleration: $2g$ in all axes

◆ Precision: < 5 μm
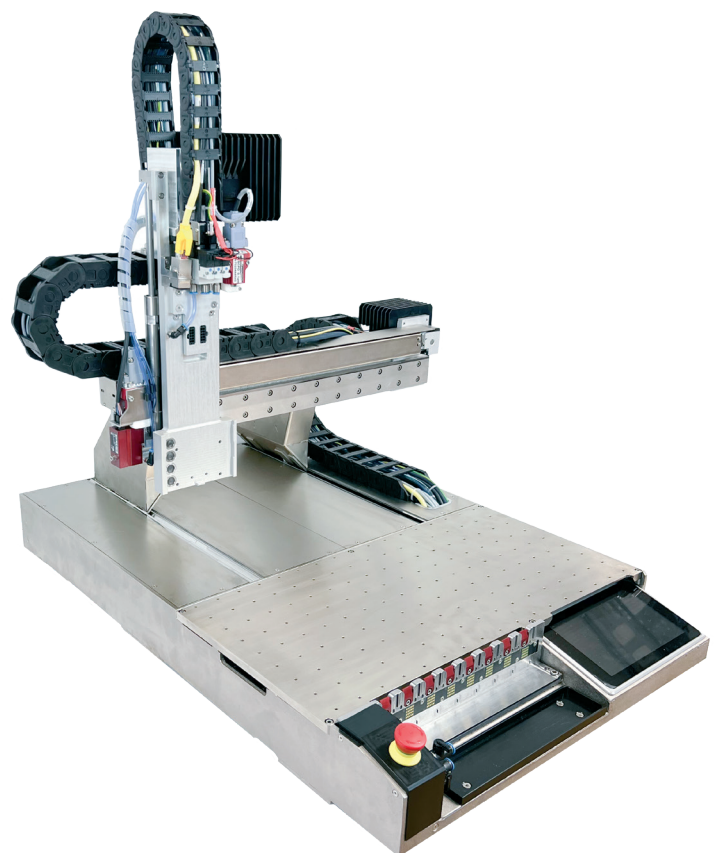
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