Automated assembly of adjustable rollers for sliding systems

Industry Insight

In the **home and industrial furniture components sector**, manufacturers face a growing demand for high-quality solutions that combine durability, smooth operation, and compact design.

To remain competitive, production lines must efficiently handle numerous product variants while ensuring reliability, precision, and minimal downtime. Automated assembly solutions must therefore combine flexibility with strict quality standards. It is in this context that **Ghecor** developed a project for a leading manufacturer of sliding systems for drawers and doors.

Handled parts

In addition to standard components — wheels, pins, and bearings — the system also requires the feeding of several **metal brackets**, differing in geometry and featuring complex shapes that make traditional feeding systems unsuitable. Unlike simpler components, these brackets require advanced handling to ensure proper orientation and positioning.

For this reason, **a flexible feeding solution was adopted**, ensuring process continuity and reliability. This strategic choice also allowed multiple trolley models to be assembled on a single production line, minimizing downtime.

Configuration

The assembly island integrates advanced automation technologies to ensure a smooth and precise process:

- Three DENSO robots coordinate the operations — two LPH040 SCARA units for fast and accurate handling, and a compact six-axis anthropomorphic robot VS6577 for more complex tasks.
- A **FlexiBowl® 800** system manages the feeding of the brackets, enabling reliable handling of metal parts with complex geometries. The six-axis robot picks up the brackets from the FlexiBowl® and places them in the assembly jigs for coupling with the wheels.

Supporting the process, two vision systems verify the presence and conformity of the balls inside the wheels, while three automatic greasing stations perform lubrication before the final assembly phase.

Precision and efficiency

This configuration achieves high productivity without compromising quality. Thanks to flexible feeding, the system can handle different trolley variants without retooling, reducing setup times. The integration of robotics and advanced vision systems ensures precise operations, consistent output, and a compact layout.

Results

The line achieves a productivity rate of about **600 pieces/hour for single-wheel sliding carriages** and **400 pieces/hour for double-wheel sliding carriages**.

This solution demonstrates how smart manufacturing can combine flexibility, precision, and reliability, while ensuring efficiency and product quality.

Key points