New power for assembly lines

Fast and secure programming with the SIMOTION Handling Toolbox

EKOSIM, Manisa/Turkey

Whoever wants to package high quantities of goods economically or minimize time and effort for assembly, has to face highly modern automation technology with motion control. The necessary conversion and control of the packaging and assembly lines is performed by EKOSIM, a Turkey-based company – a Siemens Solution Partner.

EKOSIM analyzes and plans all the necessary retrofitting and measures to be taken for individual packaging machines, transfer machines (winding and unwinding machines), complete sheet steel assembly lines or demanding systems for polyurethane packaging. EKOSIM’s recipe for success are tailormade solutions and their fast realization.

For optimizing the automation level, 3-axis cartesian robots and 4-axis DELTA 3 robots are used. Robots which are individually produced and programmed by EKOSIM. With the SIMOTION Handling Toolbox, Siemens provides an efficient basis. By using this proven programming library, EKOSIM succeeds in keeping the time needed for programming low and in minimizing possible risks of fault.

Automation tasks include collecting, filling and packaging as well as palletizing the products. However as different the tasks may be – the drive technology is always the same: SIMOTION Motion Control System and SINAMICS S120 drives from Siemens.

In order to optimize partial and complete processes, the use of robots is considered very carefully at EKOSIM. Up to now, the output of assembly lines had been subject to heavy fluctuations due to manual work. The target is to reach a higher number of pieces in constant quality coming out from these assembly lines. Many customers benefit from this already today, for example in the case of safety-relevant valve assembly or the packaging of switches and socket outlets for residential building technology.
Precise control of 3-D motion – with SIMOTION

With the help of the “Conveyor Tracking”, “Product Registration” and “Zone Monitoring” functions of the SIMOTION Handling Toolbox, packaging units can be filled “nonstop” immediately after thermoforming. The results are convincing: The cartesian robot used by EKOSIM collects the packaging goods and places them into the open packaging units. For this, the conveyor belt is permanently controlled and synchronized. The 3-axis control proves to be so efficiently and reliably that even packaging processes where the products are coming out directly from the machine can be automated.

4-axis control for even more complex tasks

In order to pick up the items from the conveyor belt very accurately and to sort them precisely into the crates, even at high speeds, a camera detects the product coordinates before. With this information, SIMOTION controls the DELTA 3 robot, which works very quickly and precisely thanks to a fixed frame and a lightweight arm construction. All necessary functions are already implemented in the SIMOTION Handling Toolbox and are efficiently adapted to the individual case of application by EKOSIM. Also here, the “Conveyor Tracking”, “Product Registration” and “Zone Monitoring” functions are extremely useful. Programming overhead for synchronization of the second conveyor belt which is transporting the collecting crates is only low – but the effect is the more impressive: Within only one second, the robot is collecting and sorting up to 150 products! No wonder that EKOSIM as a Siemens Solution Partner also gets the Turkish market going.

Handling automation with SIMOTION: Advantages at a glance

- Faster and higher-quality engineering thanks to standardized tested software and already system-integrated kinematics
- Full flexibility by integrating customer-specific kinematics via free transformation interface
- Simplified implementation and data storage by using a uniform control and development environment
- Optimized dynamics through flexible determination of the web speed
- Ideal for every application thanks to free choice of the SIMOTION platform (PC-, controller-, drive-based) – optimally scalable hardware and performance
- Three-dimensionally supported definition of working areas, restricted areas, alarm zones and product zones, which can be activated individually
- Standardized connection of camera systems
- Highly dynamic synchronization of up to 10 moving conveyor belts via the "Conveyor Tracking" function

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