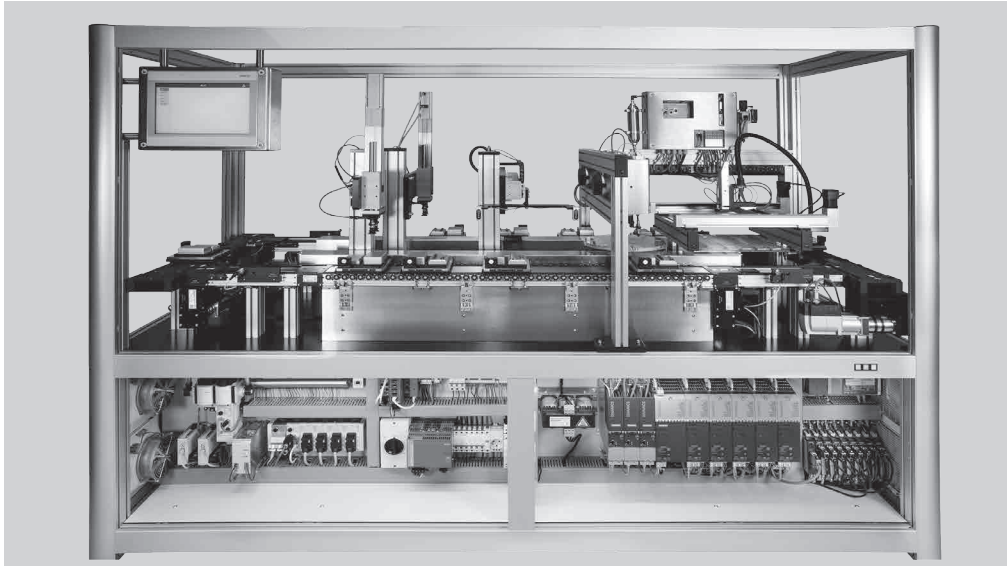


Revolutionary: Multi-Carrier-System and compact handling systems

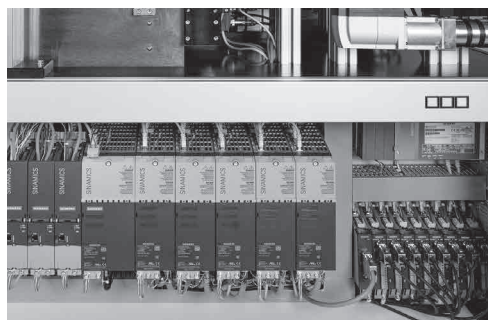
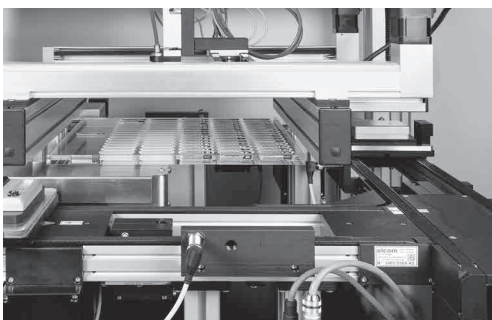
FESTO

Dynamic Display
D-ED1501



The revolutionary Multi-Carrier-System MCS[®], a cooperation of Festo and Siemens for assembly lines together with other innovative handling solutions.

The simulation of an equipping and assembly process shows a modern, modular system design and how the MCS[®] can extend and be integrated into the transport system solutions of the company Elcom. The simulation is expanded by an inspection process. Other highlights are the highly efficient high-speed pick & place module of the battery equipping station and the simple 3D adhesive application using motion synchronisation. Here, the MCS[®] carrier of the transport system moves in time with the adhesive-bonding process and the 2D motion of the adhesive handling system. Reducing the required degrees of freedom in the handling system and synchronising the transport motion simplify the process unit. This reduces costs and increases flexibility in the process. The compact handling system YXMR is ideal for feeding the batteries to the rotary indexing table from the tray and back again. The ready-to-use system kit consisting of kinematic system, controller and software is perfectly coordinated. Its innovative drive concept means that it can use almost all of the limited installation space available as working space.



The MCS[®] is used only where it is needed by the process – within a station or throughout a complete flow process. It is fully integrated where a dynamic response or easy positioning are required over short distances. As an extension, it provides maximum motion flexibility since no transfer station is needed. The MCS[®] can be combined with any conventional conveyor belt or system – in this example, it is combined with an Elcom belt system.

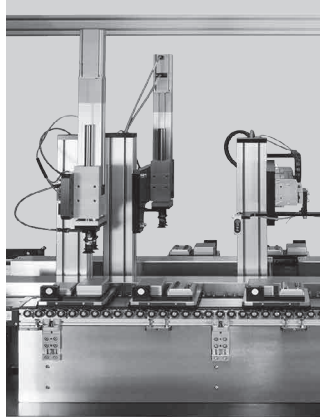
Industry 4.0 functionality

The concept from Siemens with virtual commissioning (simulation), modular servo regulators and motion controller with optional OPC UA interface as well as the carriers equipped with RFID from Festo permit open integration into Industry 4.0 host environments. The optional energy efficiency module MSE6-E2M from Festo evaluates pressure and flow rate in the system in real time, can make autonomous decisions on-site and communicates via fieldbus or OPC UA.

Revolutionary: Multi-Carrier-System and compact handling systems

Modular system design right from the beginning with the MCS®

The modular system design enables individual stations to be operated independently of one another – always in their optimum working range and with maximum efficiency. The highly dynamic and flexible MCS® system forms the core transport system within the module. The entire lifecycle can be planned using the so-called virtual twin in the Mechatronic Concepts Designer from Siemens – from engineering design to system design through to all adjustments and modifications.



- Maximum flexibility in the system layout thanks to its modular design
- Free movement of the workpiece on the carrier within each module on the MCS®
- Easy adjustment and fast changeover to different formats, other product types or seasonal requirements.
- Fast system update in response to changes in requirements
- Generation of program data directly from the simulation
- Highly dynamic system: up to 4 m/s and 50 m/s²
- Acceleration and speed can be freely and individually adjusted for each carrier
- Grouping of carriers
- Free movement of each group
- Carriers can be placed in the system without the need for tools
- Tool-free addition and removal of carriers to increase or decrease system capacity as necessary.

Connection to and integration into existing belt systems

The MCS® can be completely integrated into the current transport system of a machine or combined with the existing intralogistics of an overall system.

In this sample system, the MCS® is combined with an Elcom belt system. All the Elcom functions are used, such as stoppers, deflectors and loops. The transfer of carriers from the belt system to the MCS® and vice-versa is seamless and wear-free.



Connection to conventional belt systems – no transfer station

- Easy connection without adapters
- Ideal for long MCS® sections or on sections with a high “packing density” of process units which require maximum flexibility of movement and dynamics.

Complete integration into an existing belt system

- MCS® systems are only integrated at those points in the process at which flexibility of movement and dynamics is required
- Reduction of the number of belt segments and transfer points for a cost-optimised system layout

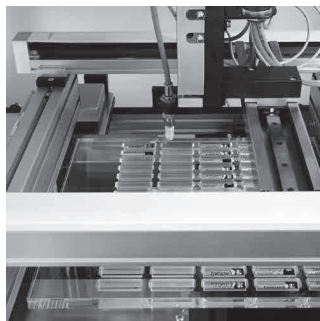
Additional features

- Direct transport on the carrier
- No need to transfer the product to different workpiece carriers
- MCS® allows the carriers to be changed without tools and without intervening in the transport system itself
- Easy to use existing deflectors, stoppers, etc.
- Wide variety of parallel processes possible

The end result is an overall system with fully variable mechanical, electrical, control and communication functionality – in line with Industry 4.0.

Highly flexible inspection in the smallest of spaces: compact handling system YXMR

The ready-to-use system kit consists of three main components: the kinematic system, the controller and the software. It is a flexible basic platform for a wide variety of applications and easy to integrate into a system concept. The addition of a Z-axis turns the 2D gantry into a 3D gantry, as in this “inspection cell”.



Energy-saving vacuum generation

The vacuum for three suction grippers ESS is generated centrally by a vacuum generator OVEM (with air saving function) and stored in a reservoir CRVZS. Three vacuum valves of the type MHA1 switch the vacuum as required.

System kit consisting of perfectly coordinated components from Festo

- The 3D gantry EXCM-30 is used as the kinematic system. It offers an optimum ratio of installation space to working space.
- The pneumatic drive DGSL is attached as the Z-axis.
- The compact controller CECC-X enables numerous functions to be carried out in very small spaces thanks to its high processor performance and various interfaces.
- Programming and commissioning are quick and easy using the predefined function elements from the software library supplied with the kit.

Additional features

- Parallel kinematic drive concept ensures low moving masses
- Motors with integrated controller and frequency converter
- Defined interface to the host system
- Industry 4.0-compatible thanks to the OPC UA interface
- Remote camera option

Vacuum

- Maximum energy efficiency during on-site vacuum generation for up to -0.93 bar, includes safety functions and fieldbus communication with OVEM