

Application Report bdtronic GmbH
Mini-dis application with compact handling system YXMx

Protecting electronics with a compact handling system

Precise application of casting resin thanks to Festo automation solution. From parking sensors on cars through to smart phones and electrical toothbrushes, sensitive electronic components need protection against the penetration of undesirable substances. Special casting resins are used for this purpose. The “mini-dis” desktop machine made by bdtronic now allows high-precision metering processes in a very small space – thanks, among other things, to the Festo compact handling system.



Compact and with high performance: the compact handling system YXMx with the planar surface gantry EXCM-30 and the controller CECC-X is supplied by Festo as a complete ready-to-install solution for bdtronic micro-dispensers.

Casting resins, which consist of one or more components, protect high-quality electronic components against undesirable penetration by dirt and moisture. Precise and reliable metering technology is essential for the automatic application of these resins. bdtronic GmbH, a company located in Weikersheim in the Federal German State of Baden-Württemberg, is one of the world's leading suppliers of metering systems, including complete systems for the automation of the assembly and production of electronic components.

Complex casting patterns

bdtronic has now worked with Festo in a groundbreaking project to expand its product portfolio. The new "mini-dis" from bdtronic, based on the compact handling system YXMx from Festo, opens up a further field of application in the front-end processing of electronic and telecommunications products. The Festo system incorporates a CECC-X controller which allows curved travel paths, thus making it possible to produce complex casting patterns. Designed as a space-saving and flexible desktop application, the new complete solution from Festo allows cost-effective production of extremely short production runs.

The microdispensers are used with semiconductor products and circuit boards, with the electronic components of numerous automotive modules and sensors, in medical technology and with

smart phones. The mini-dis processes single- or two-component materials with an epoxy, polyamide, silicon or acrylate base and solder pastes in the μl range. Across the world, several thousand different casting materials are used. This is, however, no problem for the flexible and adaptable machines from bdtronic.

Precision and reliability

With regard to the metering technology itself, two criteria are especially important: precision and process reliability. To achieve these, bdtronic works closely with its clients' experts. Within the company's own application and technical centre, intensive testing is carried out for each product of the interaction of casting resins, metering technology and the components to be processed. One of the greatest challenges in the metering process is the optimum preparation of the casting resins. These must first be homogenised and then evacuated. In this way, it is possible to avoid even the smallest air enclosures.

An important criterion for bdtronic in the selection of handling systems for metering is an interpolated actuator control system which allows radii and thus flexible contours to be travelled. Only in this way is it possible to define precise metering points, create intricate patterns and fully encapsulate components of different shapes.



Precise and flexible: the new microdispenser with the interpolating controller CECC-X is able to apply even the finest beads of adhesive.



“With the Festo compact handling system, we receive a complete system consisting of a kinematic mechanism, controller and software from a single source. This saves us time and money.”

André Hellinger, Head of development, Metering Technology, bdtronic GmbH

Compact and very flexible

This was achieved with the new desktop application by using a Festo controller CECC-X with “Soft-Motion” functionality. A key role is played by the programming language CODESYS, with which the bdtronic software engineers have already been working for a long time. Since the CECC-X can be integrated via CODESYS, it was very simple to incorporate it into the company’s component family.

A further important criterion is easy reading-in and fast processing of CAD data. With its compact dimensions, the controller is a perfect match for the planar surface gantry EXCM-30, which offers a wealth of functionality for working loads of up to 3 kg. This planar surface gantry fully covers the complete working area since it can travel to any desired position within this.

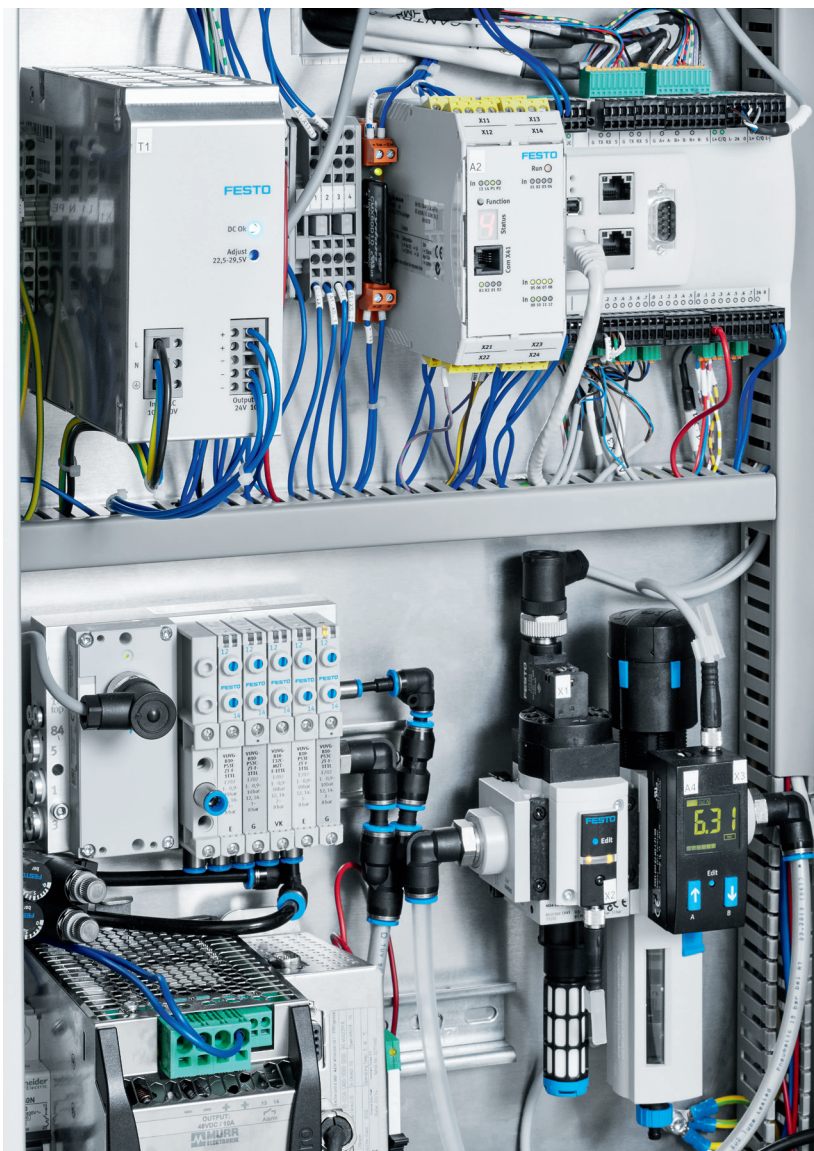
Competency from a single source

Festo has designed its compact handling system YXMx as a kit of perfectly-matched standard components. The bdtronic “mini-dis” uses a planar surface gantry EXCM-30 as a kinematic mechanism together with the controller CECC-X. Software can also be supplied on request. The provision of a large number of functions within a very small space avoids the problems of both under- and over-dimensioning. The controller software, based on CODESYS, offers the

most important basic functions required in order to program travel paths even without a deep knowledge of programming. The controller interfaces allow the connection of compact USB cameras, sensors, actuators and valves. All of this means high efficiency with a considerable saving of time and money.

Supplied ready to install

Fully assembled and tested, the ready-to-install system solutions are delivered right to the machine – together with all the design data and circuit diagrams, and of course with a comprehensive functional and fixed-price warranty. Users receive not only hardware in the form of a ready-to-install subsystem but a complete value-creation package. Complete solutions of this kind ease the burden on customers’ technical personnel, keep system design costs low, simplify the procurement process and reduce process costs.



Just as compact as the handling system is the interior of the control cabinet, with a controller CECC-X (top right), safety systems CMGA (centre top), a power supply unit CACN (top left), a valve terminal VUVG (bottom left) and a service unit from the Festo MS series (bottom right).

**About Festo:**

Festo is a global player and an independent family-owned company with its headquarters in Esslingen am Neckar, Germany. The company supplies pneumatic and electric automation technology to 300,000 customers in the field of factory and process automation in over 200 industries.

Worldwide, Festo's 17,800 staff in 61 companies generated a turnover in 2014 of some € 2.45 bn. Each year 9% of this turnover is invested in research and development. Festo supplies around 30,000 catalogue products in several hundred thousand variants and some 10,000 tailor-made customer solutions each year to customers in 176 countries all around the world. 1.5% of this learning company's turnover is invested in basic and further training. However, training services are not only provided for Festo's own staff – Festo Didactic GmbH also supplies basic and further training programmes in the field of automation technology for customers, students and trainees.

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