

World Premiere: Henkel Presented New Generation of Dosing Machines at Fakuma

Broad Data Basis for Process Evaluation and Control

Henkel presented a new generation of dosing machines with the newly developed mixing head at Fakuma 2021. The many improvements serve one purpose: maximum process stability in the fully automatic processing and dosing of sealing foams, adhesives and potting compounds. The result is high-quality sealing, bonding or potting of components.



The new dosing machine generation DM 50x (shown here a DM 503 with three material pressure vessels) for fully automatic processing and dosing of sealing foams, adhesives, and potting compounds. © Henkel

At the booth of Henkel the Sonderhoff Smart-M dispensing cell with the new DM 502 dosing machine and the newly developed MK 825 Pro mixing head was operated live. The new mixing head has a maintenance-friendly, conical V-design and has been consistently further developed on the basis of the predecessor model MK 600, which has proven itself for 20 years, with many improvements. This ensures maximum process stability for fully automatic sealing, bonding and potting with formed-in-place (foam-gasket) technology. In this process, a nozzle

applies a foam gasket bead directly on the part. With the Sonderhoff System Solutions (S3) technology platform, Henkel offers its customers tailor-made sealing, bonding and potting solutions, with material, machine and automation from a single source. The movement and positioning of the mixing head are automated with either a three-axis linear robot or a six-axis jointed-arm robot, which either move the part beneath the mixing head or guide the mixing head over the part contour. Shuttle and sliding tables, rotary indexing tables as well as through-type and

intermittent discharge conveyors are available for part feed and removal.

At the booth, trade show leaflets were fed to the mixing head via a turntable. On the robot arm, the mixing head precisely traced over the text on the leaflets and applied high-temperature curing red polyurethane foam (type: Fermapor K31) onto the letters as a gasket bead.

The sensors installed in the DM 502 dosing machine and the MK 825 Pro mixing head measure a wide range of data for seamless monitoring and compliance with critical pro-

cess parameters, such as temperature, degree of air loading, sensor-monitored axial position of the agitator shaft, automatic control of the DVS stroke adjustment, and sensor-monitored needle positioning of the dosing valve. This provides the machine operator with a comprehensive database on the entire FIP(FG) application process. It enables fast and precise data analysis for optimized process evaluation and control as well as predictive monitoring of material application processes and preventive maintenance of wear parts.

Dosing Machine and Mixing Head with Integrated Sensors

In addition to better evaluation options, the new mixing head achieves outstanding dosing and process quality for even better results. In order to ensure an always optimal application process and higher machine availability, the DM 502 dosing machine and the MK 825 Pro mixing head allow important machine parameters to be measured by integrated sensors:

- automatic positioning and speed control of the agitator in the mixing chamber,
- automatic stroke adjustment of the agitator with stepper motor and position monitoring,
- automatic air loading for optimum cell structure of the foam seal,
- automatic, sensor-monitored position of the dosing needle made of high-performance plastic in the shot and recirculation valve.

In addition, a greatly improved temperature control system has been introduced.

The data collected via sensors at many points in the dosing system can be of great value for the customer's on-going production. Sensors measure, for example, the interactions between the stroke setting of the agitator in the DVS-3 nozzle sealing system and the defined output quantity. These factors have a decisive influence on the foam structure of the seal, especially if it is to be very fine-cellular.

The stroke adjustment of the nozzle sealing system (DVS-3) is automatically adjusted via the control system on the MK 825 Pro, and there is also a sensor-monitored axial position of the agitator shaft. The new DM 502 also offers improved valve technology with process monitoring and needles made of high-performance plastic, which closes the dosing valve precisely even with very thin-bodied material.

The dosing pumps specially made for the DM 502 have a speed range that is twice as high and allow a wider discharge range of the dosing quantity from 0.05 g/s to 120 g/s. The newly designed pump flange makes it very easy to change the precision gear pumps. The new design and the arrangement of the modules in the machine cabinet enable significantly simplified maintenance.

Operating Comfort through Improved Visualization

For operation of the DM 502 dosing machine, the multifunctional MP 2 mobile panel with 10.1-inch touchscreen or, as an option, the new Control 3 multi-touch operating panel enlarged to 21.5 inches are offered. A new, user-friendly menu layout with central navi-



The MK 825 Pro mixing head with many improvements for higher process stability.

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gation and a uniform layout of the user interface enable intuitive menu navigation.

Most of the designations on the touchscreen fronts have been replaced by universally understandable symbols, which make menu operation independent from languages. In addition, it is possible to adapt the user interfaces to the different tasks and preferences of the machine operator.

Interactive remote maintenance together with the customer is also possible. For this purpose, Henkel service technicians connect online to the customer's operating panel and use the alarm logs of the DM 502 and the various visualizations of the process data for error analysis. ■



Visitors show great interest in the Sonderhoff Smart-M dosing cell: at Fakuma, it was demonstrated how the mixing head "writes over" a brochure, as the sealing bead follows the letter contours. © Henkel

Info

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