Integration is the Name of the Game

A small brush for dental care, as HEKUMA’s exhibit this year, combines fast take-out, quality inspection and packaging. It shows the flexibility of the modular concept HEKUflex, which was introduced just last year.

This year as well, HEKUMA is presenting itself with an exhibit in collaboration with the injection molding machine manufacturer ENGEL and the precision mold maker HACK. "scrub!", the interdental brush developed by pheneo from Bremen, Germany, is produced in an 8-cavity mold on an ENGEL e-motion 170/110.

The automation tasks include taking out the 8 brushes, a sampling inspection of each 50th shot and the packaging of two shots each in a pouch with an eurohole. The interdental brush is made completely of plastic. Even its fine bristles are injection molded. This makes a metal insert unnecessary and simplifies the production process significantly.

The modular series HEKUflex celebrated its premier last year, first at the NPE in Florida in the United States and then at the FAKUMA in Friedrichshafen, Germany. Where at those shows, the take-out, camera inspection and packaging module for pipette tips were shown, now the focus is on showing how the interdental brushes are taken out, inspected and packaged. Emphasized here is the flexibility of the modules. Because of the modular construction, it only took 50 days to engineer the system.

*HEKUMA’s modular concept HEKUflex shows its flexibility at this year’s K in Dusseldorf*
Brush take out occurs at a typical speed of less than one second in the take out module itself. This requires highest precision and care, because neither the product nor the mold allow very much space. The gripping surface, i.e. the surface of the product that the grippers can touch, is merely 10x10 millimeters in size. Understandably so, since the brush size is barely 40 x 10 x 3 millimeters. The brushes are held in the grippers using vacuum suction to ensure that there is no damage to the product. After take out, the gripper moves to a shuttle plate, where it sets down all of the parts in holes designed for the purpose. Every 50th shot is driven to the left to a camera module. Every other shot goes to packaging directly.

**This year’s exhibit focuses mainly on integration**

Third-party systems are integrated in two of the three modules. The left module, a camera module, shows a 360 degree camera inspection in collaboration with STÄUBLI. The STÄUBLI TX40 holds the product in front of the camera and turns it. A total of five pictures are taken and analyzed. The camera assumes the function of product monitoring. If the interdental brush deviates from the standard, an alarm is signaled. The design and the software for the camera system were created by HEKUMA’s own camera development team. In addition to the length and the straightness of the center bar, another challenge is the ability to detect and measure the fine bristles. The inspection time for each part takes 30 seconds.

During the sample inspection, parts will still be taken out, after which they are dropped into a hopper. Two shots are collected on a conveyor belt and packaged in a pouch. The PACKMAT “280VD Sonder” is responsible for the packaging. Once the pouches have been filled, they are welded, a eurohole is punched and then they are dropped onto a conveyor within the automation process. The conveyor moves the pouches into a box. The space-saving position of the good-parts box allows the pouches to be taken out manually during ongoing operation without any danger or bringing production to a standstill.

**About HEKUMA:**

HEKUMA (Eching / Germany), a company of the elexis Group, creates sustainable competitive advantages through innovative ideas and exciting technology in the field of high-performance automation for the plastics industry. We have established ourselves through commitment and ambition as a competent system manufacturer and proudly look back on more than 40 years of experience. Complex grippers for high performance insert and takeout robots for the injection molding process in combination with up- and downstream automation are part of our core competencies as well as the development of turnkey customized solutions or production concept development, such as HEKUflex and
Sigma inside. We focus on the industries for medical devices and automotive as well as for consumer goods.