



Fast route to point of action

For the production of their fast-acting nasal applications, M et P Pharma AG has been relying on Harro Höfliger as their competent partner – from developing the device and the pilot machine for filling and sealing, all the way to high-speed production.

The corporate slogan “The Nasal Company” puts it in a nutshell: M et P Pharma is a specialist for nasal applications. The Swiss Company concentrates on the intranasal administration of molecules that are effective in the brain – neurotransmitters and hormones, for example – are administered by means of thixotropic oil formulations. The

fascinating part is that the nasal and olfactory mucosa, blood capillaries and nerve pathways are the small back doors through which these active ingredients can pass directly into the brain, past the powerful blood-brain barrier.

The nasal applicator is as innovative as the concept – a mono-dose container made from polyethylene with a convex

“For challenging tasks such as the manufacture of a completely new application device, it takes a system manufacturer like Harro Höfliger who develops the necessary processes with a creative approach.”



Udo Mattern,
CEO at Met P Pharma AG,
Emmetten (CH)

Parts infeed
Each of the four vibratory bowls conveys up to 150 top and bottom parts per minute into the line.

Pick and place
By means of a linear pick and place unit, eight correctly oriented bottom parts each are inserted into special workpiece carriers.

IPC removal
An integrated process control ensures that all applicators meet the highest quality demands.

Ultrasonic welding
Four ultrasonic welding stations ensure the 100 percent tight and secure joining of the applicator parts.

Liquid filling
The gel dosing station fills four bottom parts with the thixotropic oil formulation.

Alignment
A robot places about 110 correctly positioned parts per minute into the workpiece receptacles using suction grippers.

Completion
A transfer unit with four suction grippers places the flat top parts onto the filled bottom parts.

liquid reservoir and twist-off pin closure. “For the administration of centrally acting molecules it is imperative to use a perfect combination of active ingredient, formulation and applicator,” explains CEO Udo Mattern. “Our container guarantees a simple and accurately dosed application.” Harro Höfliger has been involved in its development from the very beginning. After all, it was necessary to find tailor-made processes for handling, bubble-free filling and sealing of these brand-new devices.

A milestone on the route to commercial production was the semi-automatic pilot line, which M et P has been using for cli-

nical trial drugs and test samples since 2012. The practical experiences gathered with this line were directly integrated into the design of the high-speed machine that Harro Höfliger developed in parallel, with an upscale factor of 1:10.

Product conservation, reproducibility and tight ultrasonic welding of the injection molded parts proved a particular challenge. Ultimately, the solution resulted in the optimization of the device design. Instead of the original “butterfly” shape with a hinge, two separate plastic halves are now used, which are joined in four welding stations at lightning speed. The wavelike

contour of the welded edge reinforces this precise and homogeneous connection of the top and bottom part. Furthermore, a small separating strip around the cavity of the bottom part prevents leakage of the oil formulation and protects against particles – in addition to dust extraction during the sealing process.

In the fall of 2016, M et P put the fully automatic line into operation. It is an oval motion machine in an eight-lane version with an output of 200 devices at 25 cycles per minute. From two vibratory bowls each, both the bottom parts with the bulbous molding and pin, as well as the flat top parts are fed

to the line as bulk material on a belt conveyor. A camera detects the position of the parts. Only correctly positioned halves advance to the suction grippers, which deposit eight bottom parts each into workpiece carriers. A rotary piston pump with a four-way dosing head alternately fills four bottom parts each with active ingredient containing oil. This is followed by the transfer of the upper parts and the servo-driven welding. In addition to the tightly focused camera inspection, an in-process control with fail part ejection ensures the perfect quality of the applicators. ■