

# New combination: Tremendous format diversity plus sterilization tunnel

A European company that exclusively supplies veterinary medicine products operates a line from Optima Pharma equipped with a washer, sterilization tunnel, and filling and closing machine. The challenges of this project involved processing a very large format range all under aseptic conditions. Various system properties ensure cost-effectiveness and the high product quality that is appreciated by veterinarians around the world.

Whether antibiotics, vaccines or treatments against parasites, the pharmaceutical standards when producing veterinary medicine products are comparable to

those for human medicine. In this example, there is no indication that the equipment is being used specifically for veterinary products.

In the first stage of the system, the vials are cleaned. They are manually placed on a rotary turntable and fed to a washing machine. Grippers on the rotary washer grasp the vials and turn them 180 degrees upside down. The vials are cleaned inside and out by needles inserted from below and external spray nozzles. During the first wash cycle, the washer uses cost-effective re-circulated water filtered and recycled from the final rinsing station to reliably remove particles inside the vials. After being air rinsed, a second wash cycle takes place with WFI (water for injection) for the final rinse, following which the vials are once again blown dry. In the final processing stage of this section, the vials are rinsed internally with a silicone emulsion and then blown dry a third time.

## Numerous functions, small number of components

The vials then pass through the sterilization tunnel. After sterilization, they are transferred to a rotary turntable in an open RABS zone with laminar flow. From the rotary plate, the containers enter a monoblock filling and closing machine. The rake transport of the linear machine moves the containers to the four filling points, which each fill one-quarter of the total volume of the product. The multiple filling points increases the overall output of the cycled,

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**30Min**

fully synchronized system, especially for large filling volumes. The tare weight of the containers is recorded before the first filling. After the fourth filling station and a second weigher, the net filled weight is known. The net filled weights are subject to a statistical analysis as part of 100 % in-process control. This makes it possible to continuously adjust the control of the four peristaltic pumps to the optimal filled weight, resulting in maximum utilization of available product by avoiding unnecessary overfilling and rejects due to underfilling. Particle measurement also takes place during the filling process. Finally, every container is flushed with nitrogen to reduce the residual oxygen content.


The closing procedure likewise takes place inside the monoblock machine and begins with stopper insertion. Stoppers are fed from a vibratory bowl to a vacuum gripper and then inserted into the vials. An optical inspection verifies that the stoppers have been inserted. In the second part of the closing process, caps are lined up and positioned on the vials with stoppers. These caps are also fed from a vibratory bowl. Another control station checks the crimp closure before the products are discharged from the monoblock machine to the eject lane where filled, closed and inspected vials are manually removed. Defective containers exit through the reject outlet.

## Impressive in production

- Conserves cleaning agents
- Interior silicone rinsing function integrated in washer
- Great format flexibility combined with aseptic processing
- Interface-free, reliable monoblock design for filling and closing
- Stopper and cap insertion on the front of the machine
- High filling accuracy
- Compact line layout

## Not just glass

Formats of 10, 50, 100, 125, 250 and 500 ml can be processed on this line. The output for the largest format is 1,100 units/hour and up to 3,600 for the smallest format. The 125-mL format is a PET bottle that is manually placed directly on the rotary plate of the filling machine, in other words: no washing or sterilization takes place. In all other cases, it is glass vials that are processed. Format changes take less than 30 minutes.

This project was the first time a monoblock machine with such a large format range was combined with a washer with sterilization tunnel. The operator benefits from the large format range in the filling and closing process under aseptic conditions. Moreover, the filling and closing modules installed in the framework of a single machine save space in the already compact line. 



Up to  
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