

User report

When extreme tightness of doors is crucial

Efaflex clean room doors protect people and products at Maropack AG

Even trace impurities in the ambient air can cause huge losses in the production and packaging of pharmaceuticals and vaccines. Little wonder, then, that requirements are constantly increasing on the quality of clean rooms and clean room components. Clean rooms and correctly filtered air are essential for companies in the biotechnology industry if they want to produce according to GMP standards. Critical spots within the controlled sectors are airlocks for people and materials. That was why Maropack AG in Zell, Switzerland, chose EFAFLEX special clean room doors for their extremely high level of tightness.

“We work with biological products and must therefore produce according to very special requirements,” explains Dr. Wolfgang Morkisch, Managing Director of Maropack AG in Zell. They are the only company currently using the “blow-fill-seal” method to package drugs and vaccines for pharmaceutical companies, and are bringing a new production line into operation this year. 16 Efaflex EFA-SRT®-CR clean room doors were built into the new production complex. “These doors are integrated into airlocks,” explains Karl Hochuli, Technical Director at the factory. “Materials are introduced into and brought back out of the production rooms through these airlocks. Introducing equipment and production supplies means penetration into a highly sensitive area.” It is just as important to ensure no particles escape from the clean room area to the outside. “We are obliged to protect not only the products, but also our personnel.”

The airlocks are therefore designed according to a progressively arranged, onion-skin principle with alternating positive and negative pressure. “What is crucial for us here is the high level of tightness of the doors,” the Technical Director emphasizes. Due to their closed curtain guides, Efaflex high-speed roll-up doors for clean rooms achieve very high tightness. Pressure gradients within the range of 15 Pa ensure air losses of less than 10 m³/h for door sizes of 2,350 mm x 2,350 mm. “Because we fill biological products at our company, we even work with a pressure difference of up to 30 Pa,” Dr. Wolfgang Morkisch explains.

Aside from regular cleaning of the airlocks, frequent product changes demand a greater cleaning effort, meaning the doors not only have to be air-tight, they also have to be resistant to hydrogen peroxide (H₂O₂) and alcoholic solutions. “We are contract fillers and work with various, alternating sterile solutions; cross-contamination must not happen,” the Managing Director explains. “For vaccines, for instance, we even fill living organisms, and everyone fears that something could happen if even only a tiny trace would escape into the environment. Regular cleaning is therefore very, very important. We are accountable in this respect towards our customers, as well as to authorities.”

To greatly facilitate cleaning, the doors are built particularly smooth and with flush-mounted controls. All horizontal coverings are also tilted to prevent liquids from collecting and dirt particles from depositing. This precaution has even been taken on the opening sensors and separate switch cabinets, for instance. The LED lamps that indicate when the door can be opened and the pressure displays are integrated flush into the door frame without projecting edges. The frame and curtain cover uses clip technology to make it easy to assemble and maintain. The use of very few conventional screw connections greatly benefits the optical appearance, haptics and technology.

The airlock doors are integrated into a person-specific lock system, which ensures only specific employees have access to certain areas. The new production building is expandable to four modules as required. Filling can be done on all kinds of machines in these modules. That way, up to 100 new jobs can be created on top of the 55 existing jobs. “Our machines are unique,” emphasizes Dr. Wolfgang Morkisch. “Because of this, we operate as a reference business. Customers come to us from around the world to visit our factory. It is therefore important for us not only to have unique machines, but also to present equally high-quality production equipment, from the ventilation systems to the Efaflex clean room doors. We are very proud that we can do that.”

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