

## Consistent pressure for clean processes

**EFAFLEX, the high speed door specialist in cooperation with the German Technical Inspection Association, TÜV, have developed a new series of special doors solutions intended for clean room installation, with a classification of air cleanliness certified by TÜV.**

Clean room doors play a crucial role in ensuring production reliability. They are used to access clean rooms or to separate different room classifications, with requirements for these doors depending upon the actual process or specific product. With the CR series (Clean Room) EFAFLEX, the specialist for high-speed industrial doors, offers a range of high-quality special doors for controlled production environments. The application profiles of the EFAFLEX clean room doors are perfectly attuned to the requirements of the pharmaceutical, medical technology, biotech, packaging, cosmetics and food industries. For the door specialist, providing special door solutions in response to customer needs isn't uncommon, it's just one of the many traits that distinguish EFAFLEX, setting them apart from its competitors.

Even in situations with extreme pressure differences, meticulous attention from design through to manufacture ensures an effective mechanical seal. As you'd expect with such considered design, all high speed doors have smooth surface finishes, no protruding edges and angled covers further reducing potential particle deposits. The GMP-compatible door types within the CR series are mainly supplied in V2A. They comply with the following international standards and guidelines for clean room applications: EN 14644, FED STD 209, VDI 2083.

Due to the clinical attention to detail, not only are the doors perfectly suited for clean room applications the CR series also provide the inherent advantages of the whole EFAFLEX range, with class leading operating speeds, contributing to additional energy savings and designed for high usage, minimising maintenance requirements.

## Technical information

### **EFA-SRT® CR Premium**

According to the test certificate regarding the air cleanliness of airborne particles of TÜV SÜD, the EFA-SRT CR Premium is suitable for operation in clean rooms up to ISO class 5 in accordance with EN ISO 14644-1 for particle sizes  $\geq 0.3\mu\text{m}$ . For this compact door system, edges and horizontal surfaces were largely dispensed with. The control has been integrated into the frame so that no external switch cabinet is required. The door system is extremely airtight (up to 20 m<sup>3</sup>/h) at a compressive strength of up to 30 Pa and features an emergency release mechanism via tension springs. In the standard version, the door system is equipped with a 15° angled cover. The standard surface is made of V2A stainless steel and the door opens at a speed of 1.0 m/s and closes at a speed of 0.5 m/s. Conclusion: The EFA-SRT® CR Premium is ideally suited to sealing rooms with different pressure conditions. Fast operating speeds increase the cost efficiency in clean rooms, reduce air loss and keep the filter load low. The EFA-SRT® CR Premium has been designed for 150,000 operating cycles per year between individual inspection intervals. The door comes in standard sizes up to w=2,500 mm x h=3,000 mm.

### **EFA-STT® CR**

The EFA-STT®-CR is suitable for use in larger clean rooms where pressure cascades as well as in inertised rooms. Its solid door leaf provides an excellent mechanical seal, with an air permeability of up to 50 m<sup>3</sup>/h at 30 Pa (depending on the door size/installation side). The individual laths are constructed of PVC-free

highly transparent acrylic glass infills, allowing transfer of light throughout approx. 80% of the installation surface (max. w=4,000 mm x h=5,000 mm). The laths are integrated into our well-proven spiral without contact and therefore move in a virtually wear-free manner. The complete door system has been TÜV-certified up to ISO class 6 in accordance with ISO 14644-1.

Thanks to the tried and tested spiral technology, this high-speed door operates reliably at speeds of up to 2.5 m/s. It is particularly suitable when the exchange of pressure and atmosphere is to be minimised, for example during the inertisation for dry fire prevention. When compared to a normal EFA-STT® door the clean room version incorporates additional seals and so called 'labyrinth' packing.

Conclusion: Thanks to its transparent blade design, the EFA-STT®-CR is also ideally suited for intersection airlocks where materials are transferred. For this door type the maintenance costs are lower than for a conventional clear clean room door, within the scope of programmed maintenance with individual inspection intervals the EFA-STT®-CR is intended for 200,000 operating cycles per year without any problems.

### **EFA-SRT® CR Efficient**

According to the test certificate regarding the air cleanliness of airborne particles of TÜV SÜD, the FA-SRT® CR Efficient is ideally suited for operation in clean rooms up to ISO class 6 in accordance with EN ISO 14644-1 for particle sizes  $\geq 0.1\mu\text{m}$ . The door system is very airtight (up to 40 m<sup>3</sup>/h) and withstands a compressive strength of up to 30 Pa. The particularly narrow frame legs allow for a space-saving and visually appealing installation, even in confined spaces. Due to the integrated absolute encoder the door can immediately resume automatic operation in the event of power failure, making it unnecessary to perform manual synchronisation. Manual operation is possible at all times using a separate crank handle. In the standard version, the door system is equipped with a 15° angled cover.

Conclusion: The compact head cover requires only a low lintel height. The door can also be used in very tight spaces. Within the scope of programmed maintenance the EFA-SRT® CR Efficient has been designed for 100,000 operating cycles between intervals. Compared with a conventional ISO class 6 door maintenance costs are significantly lower but with the same high number of operating cycles.

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