



Realistic takeoffs and landings of miniature aircraft with the Compact Modules CKK and CKR

Small but great aircrafts

At the world's smallest airport in Hamburg, the Knuffinger Airport of the Miniatur Wunderland, visitors experience 360 daily takeoffs and landings of precisely reproduced aircraft models. This is made possible thanks to precise and reliable Linear Motion Technology and Assembly Technology from Rexroth.

Aircraft models take off and land at the airport in the Miniatur Wunderland in Hamburg 365 days a year. With around 80 operating hours a week, the technology is heavily used. To ensure that everything runs smoothly, the designers therefore chose factory automation components. Longevity and precision in combination with the broad product portfolio were the decisive factors for choosing Rexroth's Linear Motion Technology and Assembly Technology. For the takeoffs and landings, the aircrafts "fly" from two windows to the right and left of the 14 m long runway. Both openings are camouflaged by a cloud curtain, which can be adjusted via two parallel running Linear Modules MLR. Behind each of the openings is an elevator platform, with which the aircrafts are correctly positioned.

Versatile, robust & adaptable

The designers used two Compact Modules CKR as well as profiles, angles and connectors from the modular profile system of the basic mechanical components to design the elevators. The linear axes of the two Compact Modules CKR are driven by a belt drive. In addition to being highly dynamic and having high load capacities in all four load directions, they have the required rigidity thanks to integrated, clearance-free Ball Rail Systems. It's the only way that vibrations from the elevator to the airport panel can be prevented. The starting device consists of two thin bars, which are each mounted on the carriages of two Compact Modules CKK. These are connected with a linear axis below the runway, which ensures the forward movement. Thanks to the installed Ball Screw Assemblies with a zero-backlash nut system, the Compact Modules CKK are characterized by accurate positioning and repeatability. The aircraft can thus take off and land with a fluid motion thanks to the Compact Modules made with millimeter precision - and make Knuffinger Airport a special experience.

Challenge

More than 45 aircraft models have to complete over 360 takeoffs and landings daily in the Miniatur Wunderland in Hamburg.

Solution

Linear Modules MLR as well as Compact Modules CKK and CKR.

Result

"Bosch Rexroth's linear drives help us enormously as they're extremely reliable, high-precision and do a great job here."

Gerrit Braun, Founder of Miniatur Wunderland Hamburg



Solved with

- ▶ Linear Modules MLR
- ▶ Compact Modules CKK & CKR
- ▶ Customized Linear Motion Technology
- ▶ Consultation, delivery & service