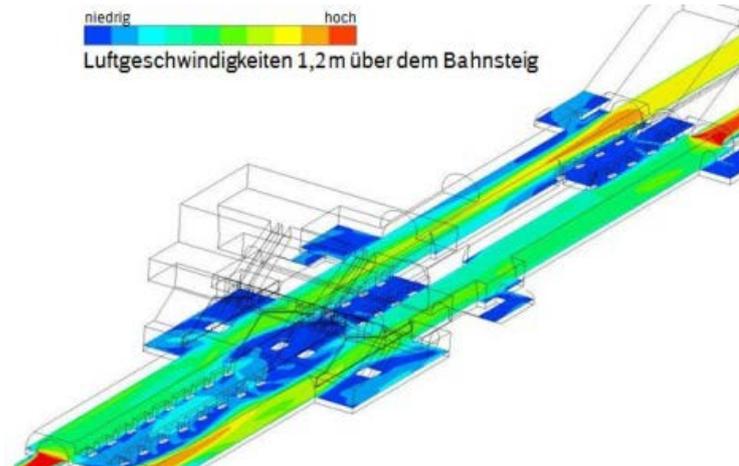




Photo: DB AG (Jan-Foto Kranert), DB Systemtechnik GmbH (Rene Volkert)



## Aerodynamics

### Air surge in underground railway stations

Within tunnel tubes, at the platforms and in escalator shafts coming from the underground railway stations, substantial pressure variations and airstreams occur because of the so-called piston effect that the trains cause. This, in turn, can lead to critical situations (safety of passengers standing and objects that can roll around on the platform, for example), a reduction in comfort levels and increased loads placed on components. The engineers employed in the aerodynamics department at DB Systemtechnik will help you to identify and address any potential problem areas early on in the planning phase. The aerodynamics testing laboratory carries out measurements and is accredited to the DIN EN/IEC 17025 standard.

#### Our services

- Calculation and evaluation of air speeds in tunnels, on platforms and on stairways
- Action plans
- Evaluation and assessment of wind comfort and the safety of individuals standing as well as of nearby objects
- Many years of experience gained — both nationally and internationally — in railway aerodynamics
- Know-how when it comes to guideline requirements and a vast database of information
- Many years of experience gained in modelling infrastructure and vehicles

#### Your advantages

- Safety and comfort for your passengers
- Prevention of customer complaints, cases of liability, operational restrictions
- Planning certainty, saving of building/construction costs as compared to subsequent retrofitting
- Investigations are compliant with the planned integration of the topic in Deutsche Bahn guideline 813
- You are provided with a reliable test result and a conformity certificate recognised by the German Federal Railway Authority (EBA)

#### Technical details

- CFD 3D tools: ANSYS CFX, Star-CCM+, supplemented with 1D tools for flow and pressure calculation
- Database of measurements conducted in the tunnel
- Conductance of new measurement programmes hand in hand with the measuring instrument department

August 2017

Our Knowledge: **Your Success**

**Contact: Emma Dully**  
 systemtechnik@deutschebahn.com  
 Phone: +49 (0) 89 1308-5546  
 www.db-systemtechnik.de