

Rail & Rolling Stock

Fire safety consultancy and design

- for the approval of vehicles or vehicle components of various clients of rail industry according to TSI LOC&PAS, DIN EN 45545 and or NFPA130
- for the fire protection equipment of ultra-high-speed trains and of tunnel tubes and stations (Hyperloop)
- for the evaluation of materials according to EN45545-2 and NFPA130
- Expert statement regarding application of CEN/TS14972 for FOGTEC water mist systems in rolling stock
- Expert statement regarding transmissibility of smoke test in the project SBB8
- Expert statement about an application of water mist systems in Italy as FCCS according to TSI LOC&PAS 2015
- Expert statement and analysis of products for use in rolling stock according to EN 45545 (e.g. for OSG screened products)
- Expert statement for necessary fire testing of sandwich components according to EN 45545 for OWS
- Expert statement for derogation of applying EN 45545-2 simplification rules for locomotives of CAF
- Fire safety approval support (national) for Windhoff MPV vehicles for UK
- Support by assessment and fire safety approval of new developed components for fire-fighting systems in rolling stock
- Preparation of a guideline regarding application of fire safety concepts for national approval of a monorail vehicle project incl. infrastructure
- Preparation of test specifications incl. final assessment of conducted tests in accordance with EN 45545 for hybrid locomotives (as subcontractor of TÜV Rheinland)
- Consulting and support on application of EN45545 for ALMiG compressors
- Evaluation of fire load and requirements of materials according to EN45545 for IVU Box Panel
- Collecting fire safety certificates for various projects of ABB incl. checking of certificates and managing necessary fire certificate inventory lists for approval at authorities (e.g. projects of RE460, X2000)
- Feasibility study on active fire-fighting solutions in the Vereina-Tunnel/Autoverlad

Fire safety concepts

- for various metro stations (e.g. Alexanderplatz) of the public transport company of Berlin (BVG)
- Fire safety concept and statement for traction converters of Mitsubishi for Deutsche Bahn's refurbishment project ICE 2
- Fire safety concept for VOITH Gravita 10BB Locomotives
- EN 45545 and EN 50553 fire safety concept support and preparation for high speed trains in Sweden

Fire risks analyses

- for traction converters of ABB for Deutsche Bahn's refurbishment project ICE 1
- for Eurotunnel's Shuttle Locomotives
- for various projects for Stadler Bussnang
- for GT6/8 and GT8-100D/2S-M vehicles of VBK

Smoke and fire tests

- Determination of fire design curve (heat release rate, HRR) and other parameters during the fire tests of an entire real rail wagon
- Fire test for assessing fire-fighting systems according to UNI 11565
- Fire tests in accordance with ARGE-Guideline Part 2 for EC250 vehicles
- Fire tests to approve a various water mist and aerosol fire-fighting systems
- Smoke tests for Rheinbahn Düsseldorf, Alstom SBB, Bombardier DoSTo Israel, Bombardier Do2010, Bombardier APM, various Stadler Flirt vehicles (e.g. Jungfraubahn, GySev, IC PKP), Gold Coast Line LRV's, HKX, Line U6 Vienna, MTTrens Sao Paulo, Pesa DMU 120, Zentralbahn, Tunnel emergency vehicles Dräger, VIA Essen, C30 Metro Stockholm, Harsco vehicle for Gotthard Tunnel, Toronto Rocket Trains, rail car ICE I und ICE II, Talent/ÖBB, Graventa Carmelit/ISR and many others.
- Hot smoke tests Metro KVB
- Oxygen tests in order to evaluate the efficiency of an gaseous extinguishing system for Stadler Flirt vehicles
- Oxygen tests in order to evaluate the efficiency of an gaseous extinguishing system incl. evaluation of possible concentrations for evacuation in engine rooms of vehicles for SJ
- Fire tests to approve a fire-fighting system in hydrogen powered trams
- Fire tests to approve the detection and fire-fighting system for Israeli State Railways
- Fire tests to approve a water mist system in divers switch gear systems
- Fire tests in accordance with EN 50553 for assessing the fire extinguishing system used in Euro

Dual Locomotives of Stadler Valencia

Simulations & calculations

- Development of a fire design curve for metro wagons of the public transport company of Berlin (BVG)
- CFD studies for the determination of the
 - o heat transfer of various rail components
 - o of temperature and smoke distribution
 - o of evacuation
 - o of the interrelation between fire, smoke and water mist in rail wagons
- fire risk analyses of various rail components
- CFD & evacuation simulation for the approval of smoke extraction and evacuation measures of various public transport company of Berlin (BVG)
- CFD study for the approval of a detection system of a snow removal rail car and a rail track construction rail car
- Heat Release Rate calculations and statement in relation to use the Duggan method for light rail vehicles in London
- Evacuation calculations according to Predtetschenski and Milinski for monorail vehicles
- Computer simulations (CFD) for assessing fire detection systems according to EN 50553 for Euro Light and Euro Dual locomotives of Stadler Valencia
- Computer simulations (CFD) regarding evacuation scenarios for BVG

Seminars

- About the determination of a fire design curve (heat release rate, HHR) of bicycles with Li-ion batteries by fire tests with and without fire-fighting systems
- Carrying out seminars regarding EN 45545 series (e.g. for BBR, SIMONA, SOLARIS)
- Carrying out seminars regarding NFPA 130 (e.g. for TSL-ESCHA, Hasler Rail)

MORE COMPREHENSIVE LIST OF REFERENCES AVAILABLE ON REQUEST