University of Birmingham Transient Aerodynamic Investigation (TRAIN) rig

LS10

Location: University of Birmingham

Designation:

Owner(s):
University of Birmingham
United Kingdom

Performance:
Mach Number:
Maximum Flow Speed:
Reynolds No:
Total Pressure:
Dynamic Pressure:
Total Temperature:
Turbulence intensity:
Run Time:
Typical Recharge Time:

Test Section Size:
150 m long facility
1/10th-1/25th, scale models can be fired at speeds up to 80 m/s

Operational Status: Active

Testing Capabilities:
Modelling the interaction of passing vehicles

Number and Type of Staff:
Scientific:
Technical Support:

Test support:
Workshop for wind tunnel model design, manufacture and modification capability.

Notes:
The Transient Aerodynamic Investigation (TRAIN) rig is a purpose built facility for measuring the aerodynamics of scale moving model vehicles. The unique facility offers the flexibility to conduct a range of experiments crucial to a detailed understanding of vehicle aerodynamic flows. These include, but are not limited to:

- Slipstream velocity measurements
- Static pressure pulse measurements
- Pressures acting on the train using bespoke on-board data loggers
- The effects of crosswinds at various yaw angles
- Aerodynamic pressures acting on trackside structures
- Aerodynamic effects of a train passing through a tunnel and sonic booms
- The effects of embankments on train aerodynamics
- The aerodynamic effects due to train design and size
- Aerodynamic loads affecting ballast flight
- Pollutant dispersion