



evropský
sociální
fond v ČR



EVROPSKÁ UNIE



MINISTERSTVO ŠKOLSTVÍ,
MLÁDEŽE A TĚLOVÝCHOVY



OP Vzdělávání
pro konkurenceschopnost

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

VÝZKUMNÝ ÚSTAV ŽELEZNIČNÍ, a.s.
Railway Research Institute, j.s.c.

Test Centre VUZ Velim

Jaroslav Vašátko

www.cdvuz.cz

Test Centre VUZ Velim

Test Centre VUZ Velim is located 50 km east of Prague.

Accredited Testing Laboratory VUZ performs tests at its own Test Centre VUZ Velim and VUZ also offers to companies possibility to perform tests themselves.

Test Centre VUZ Velim includes and offers:

- Railway test circuits (large and small)
- Dynamic Testing Laboratory
- Halls for Test preparation
- Training Centre
- Power station supplying all main European tractive power systems



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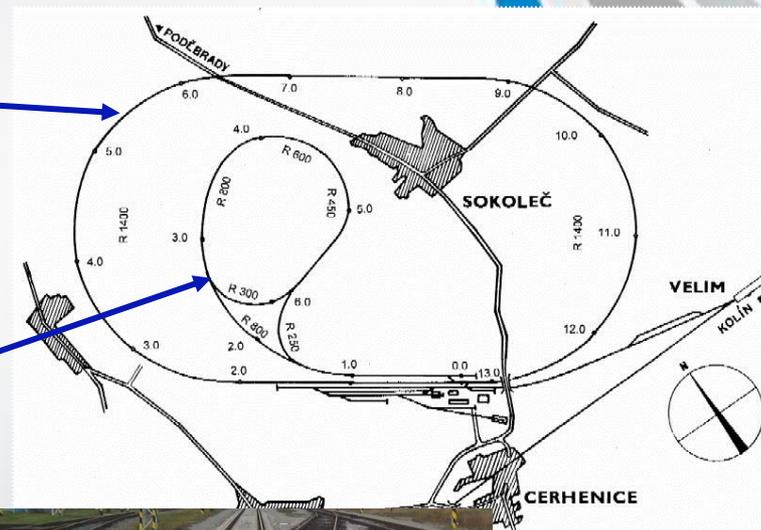
Small and Large Test Circuits

Large Railway Test Circuit

- ▣ total length of track 13.276 km
- ▣ admissible weight per axle 25 t
- ▣ admissible top speed 210/230 km/h

Small Railway Test Circuit

- ▣ total length of track 3.951 km
- ▣ admissible weight per axle 25 t
- ▣ admissible top speed 90 km/h





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The circuits rings also offer a possibility to perform special tests

- noise tests in the special sections of large test circuit, parameters of which meet the requirements of technical specification for interoperability of the Rolling stock subsystem - noise
- tests of the European signalling and communication equipment ERTMS (ETCS, GSM-R) – test centre is covered by GSM-R signal and the section of large test circuit is equipped by ETCS system Level 1
- possibility of simulation of supply changes and power supply disturbances
- EMC measuring in the special section of large test ring

Tractive power supply systems provide on test circuits

The power supply station of the Test Centre VUZ Velim offers all main European tractive power supply systems.

- ▣ DC system 1,5 kV
- ▣ DC system 3 kV
- ▣ AC system 25 kV, 50 Hz
- ▣ AC system 15 kV, 16 2/3 Hz



Supplying of the large and small test circuits with the power and different systems separately is possible to allow different combinations of power supply.



Dynamic Test Laboratory

Dynamic Test Laboratory is focused on realization of:

- ▣ static and quasistatic tests and measurements
- ▣ dynamic fatigue and strength tests of vehicles and their components
- ▣ bearings test bench



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Test Preparation Halls

Basic parameters of the Test preparation halls:

HPZ I

- two tracks with length 57,5 m each for axle load of 25 t
- service pit 35 m long, pressure air, power supply and offices

HPZ II

- two tracks with length 144 m each for axle load of 25 t
- service pit 138 m long, crane, pressure air, power supply and offices



Training Centre for Interoperability

Training Centre for Interoperability is located in the building of Dynamic test Bench and offers:

- TSI assessment training courses
- Railway sector testing activities training courses
- Training courses according to requirements of customers
- Renting of TC offices according to customers needs



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ETCS and GSM-R at Test Centre VUZ Velim

- Large Test Circuit is equipped with ETCS Level 1
- Control panel is located in dispatcher's room
- Pilot Project ETCS Level 2 will cover also Large Test Circuit
- Radioblock centre RBC
- Large Test Circuit is covered by GSM-R signal



Investment activities in Test centre Velim

Utilization subvention OPPI - Potencial - grant EU

Reconstruction of power supply station - 2009



Investment activities in Test centre Velim

Utilization subvention OPPI - Potencial - grant EU

Reconstruction of catenary LTC- 2010



Investment activities in Test centre Velim

Utilization subvention OPPI - Potencial - grant EU

Reconstruction of large test circuit
infrastructure - (2006), 2011





Investment activities in Test centre Velim

Utilization subvention OPPI – Potencial – grant EU

Modernization and building new
halls for preparation testings,
convenience for clients – 2011, 2012





Establishment of Training centre for Interoperability



EVROPSKÁ UNIE
EVROPSKÝ FOND PRO REGIONÁLNÍ ROZVOJ
INVESTICE DO VAŠÍ BUDOUCNOSTI

ŠKOLICÍ STŘEDISKO

PRO INTEROPERABILITU EVROPSKÉHO ŽELEZNIČNÍHO SYSTÉMU

Název programu: ŠKOLICÍ STŘEDISKA
Zahájení projektu: 2009

Ukončení projektu: 2010



Výzkumný Ústav Železniční, a.s.



Investment activities in Test centre Velim

Utilization subvention OPPI - Potencial - grant EU

in building and preparatory phase

Modernization of signaling and telecommunication technology including preparation devices for system ERTMS/ETCS 2 - statute testing track ERTMS

Testing drives on the track on large circuit by speed 230 km/h

- Decision Rail Authority about determination conditions for testing drives
- Permission Rail Authority with change usage construction for temporary time
- Performed TBZ on large circuit
- Measuring interaction TV - TUDC, VUZ
- Measuring acceleration vehicular box (vertical, transverse)
- Measuring noise (VUZ, Healthy Institution)
- Measuring vibrations on railroad switches (AŽD, VUT)
- Other measuring

Testing drives on 19. 10. 2011 validated ability infrastructure on large test circuit for speed 230 km/h.

Speed 230 km/h was reached in 16.20 h.

During testing acceleration from zero speed was reached speed 230 km/h after 6 min 50 s on distance 18 km.



Examples of vehicles tested in Test Centre VUZ Velim



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Thank you for your attention



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