



# High-tech metrology in a picturesque landscape:

PJM performed tests for approval of Stadler FLIRT vehicles for the regional railway TILO

The railway line seems to be taken from a fairy tale. The regional railway TILO provides trans-regional mobility between Switzerland and Italy by connecting the villages of Ticino and Lombardy. In this picturesque landscape, 40 FLIRT trains of Stadler have been running on the track. In order to keep a high level of convenience, the rail fleet was enlarged with further FLIRT trains of the latest generation. For the approval tests of vehicle dynamics, Stadler Bussnang AG settled on the many years' experience and reliability of PJ Messtechnik GmbH (PJM). The full-service provider for railway system solutions is a testing facility accredited by EN ISO/IEC 17025:2017. Due to a large number of worldwide projects, PJM has gained comprehensive know-how in terms of country-specific standards and regulations. Vehicle dynamics includes testing the track load and security regarding running safety. Therefore, various failure conditions have to be checked, such as a breakdown of the air spring or of the yaw damper. Both components have a strong impact on the running behaviour. Above all, the components are crucial factors for comfort and safety. Close attention was paid to the conditions of contact of track and wheel. Within this, the evalua-

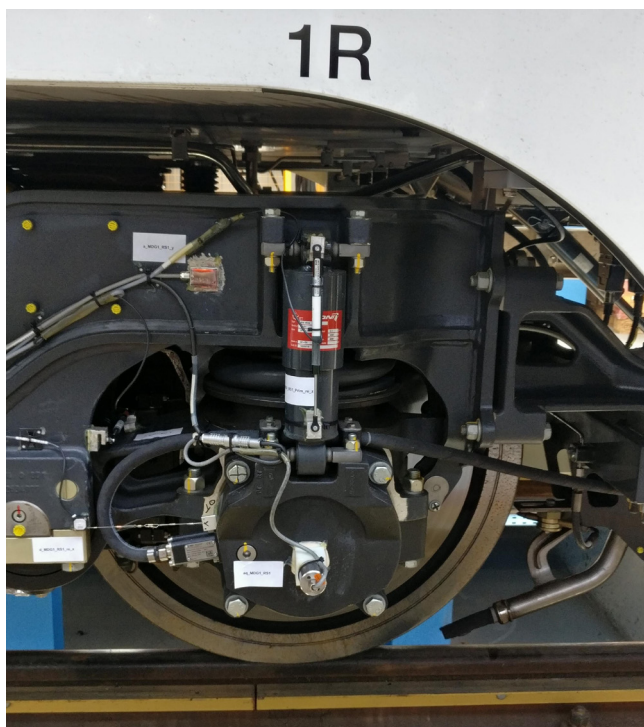
tion of the running characteristics under increased equivalent conicity is a very demanding process. This evaluation is required by EN14363:2016 and it takes a many years' experience and expert knowledge. What's the process? Beforehand, assessments are conducted. The test rides are performed, including simulation and testing of various failure conditions. Finally, all those assessment parts are put together to an overall picture.

Riding comfort is an important factor in terms of running characteristics. Yet highest priority is safety. Even when it comes to breakdowns – e.g. of the air spring – it is necessary to ensure a safe transport to the next railway station.

The PJM-team performed the comprehensive tests in Switzerland, on the world-famous Gotthard railway amongst others. Due to the preliminary work and a very exact planning, the tests were finished after 6 weeks.



*The railway line seems to be taken from a fairy tale: The PJM tests for approval were performed on the world-famous Gotthard railway. Stadler FLIRT trains have been running on the trans-regional TILO railway.*



*Metrology for approval tests powered by the Austrian specialist PJM.*

### Fact-box metrology



The equivalent conicity of the rail-wheel-contact determines the running characteristics. Parts of the running tests are performed with increased conicity to prove stable vehicles runnings, even with worn components. Therefore, worn profiles are produced in an artificial way. With elaborate tests, the running characteristics is verified.

### The project at a glance



The regional railway TILO provides trans-regional mobility between Ticino and Lombardy. 40 FLIRT trains by Stadler have been running on the track. Recently, the rail fleet was enlarged with further FLIRT trains of the latest generation.



Regarding the approval tests of vehicle dynamics, Stadler Bussnang AG settled on the many years' experience and reliability of PJ Messtechnik GmbH (PJM). The full-service provider for railway system solutions is a testing facility accredited by EN ISO/IEC 17025:2017.

Vehicle dynamics includes testing the track load and security regarding running safety.



From the end of 09/2019 to the beginning of 11/2019 the running tests were performed. Due to the preliminary work and a very exact planning, the tests were finished after 6 weeks only.

### Fact-box accreditation



The 360-degree-portfolio of PJM is made possible by a wide range of certifications.

Very shortly after its foundation, PJM was the first accredited testing facility in

Austria. By expanding the portfolio of services continuously, PJM was able to offer overall solutions very soon. The most important certifications at a glance:

- Accredited testing facility confirmed by ISO/IEC 17025
- Certified by ISO 9001
- Certified quality management system according to ATEX-regulation 2014/34/EN, attachment VII
- DeBo recognized by the Federal Railway Authority as project-independent and autonomous person/organisation for the testing of national regulations (NNTR).
- Certificate for bonding works according to DIN 6701-2
- Find all the certificates on: <https://pjm.co.at/en/accreditation/>