CECIP European Weighing Industry

Make OIML R106 futureproof

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OIML Recommendation 106 (R106) on automatic rail weighbridges has been published in 2011. Since then, the market and use of these weighbridges changed. CECIP believes this makes it necessary to revise OIML R106 to make it ready for the future.

Changed situation creates problems with current R106

In the past, the typical rail weighbridge solution consisted of one or more static weighbridges. Wagons were weighed one by one, usually uncoupled, full draught and in standstill. A scale used for such a measurement is classified as a Non-Automatic Weighing Instrument according to OIML R76. This weighing procedure with static weighing is tedious and time-consuming.

Therefore, in a relatively early stage, demand for dynamic scales increased. These scales – treated by Recommendation 106 - allow the weight determination of the coupled train while it passes the scale, thus saving a lot of time and effort.

Early generations of these dynamic scales were still multiple bridge solutions that allowed a full draft weighing of the wagons. This construction made it easy to calibrate and verify the scale also in static mode. Therefore, a good reference scale to determine the weight of the test wagons was always available.

Later, new constructions appeared on the market. Examples are:

- Short weighbridges that performed partial weighing – typically bogie by bogie
- Non-bridge based, seamlessly welded solutions. E.g. with sensors directly in the track or between track and the sleepers.

These constructions are less easily suitable to determine the weight of the reference wagons. Typically, no problems occurred as many customers still had static scales or such scales were within easy reach and could be used as reference scale.

However, in the meantime more and more customers see the benefit of the dynamic scales. Static scales are no longer maintained and verified. I.e. in many projects, it becomes increasingly difficult to find a suitable reference scale.

Consequently, manufacturers spend additional efforts to make their designs suitable for use as an integrated reference scale, even those that can only be used for partial weighing. OIML R106

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acknowledges this effort by a chapter that describes how to handle the determination of reference weights in these systems – R106:2011 Appendix B and 6.1.1 and Appendix A 9.3.1.2.

Unfortunately, it turns out that the descriptions in OIML R106 are not as clear as they were probably intended to be. This frequently provides problems in discussions between different stakeholders.

Examples of topics where differences in interpretations exist are:

- Partial weighing of axles (2-axle vehicle) or bogies (> 2 axles) on a short bridge.
- Criterion for suitability of the used wagons
- „Correct“ Weight
- Displacement test
- Left vs. Right access

Amendments necessary on several elements

CECIP therefore proposes various amendments to the current version. There are:

- Put the requirements and tests for integrated reference functionality in a separate chapter instead of many cross references.
- Distinguish between full draught and bogie/axle wise weighing.
- Define limits, number of repetitions, directions, displacement tests.
- If useful, define track requirements (as already in Annex B).
- Criteria for accepted weighing section.
- Criteria for accepted result of reference wagon weight.
- Respect that the scale is being used for (only limited time) of reference weighing but not as a general static scale.

Revision of OIML R106 necessary

The changed market of rail weighing results in a situation where OIML R106 should be updated to be suitable for the future. Hence, CECIP proposes to revise OIML R106.

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