



Special resilient wheels

With highest comfort resulting from spring deflection

Resilient wheels are good. They are good for our cities, good for people and also good for old rail lines and wagon concepts, since our special wheels cushion many unevennesses. You are able to hear and feel it, and you will like the result.

Special developments such as these have been part of the BVV tradition for more than 170 years. Here, the task was relatively difficult, because it was important to create greater deflections of the rubber elements despite little space.

LoRa, e.g., the first of these modern comfort wheels was especially developed for high axle loads and smaller running tread diameters as they are typical for modern low-floor tramways with their space-saving design. For the first time, it works with a 3-mm spring deflection, therefore, achieving a deflection of the shock absorber element up to 15 times larger than for conventional wheels for modern rail lines. Thus, with sufficient reserves even for the most difficult cases.

Certainly, no “off-the-rack” product. However, nobody expected this from us, including us.

Noise/shock →
Service life →
High economic efficiency →

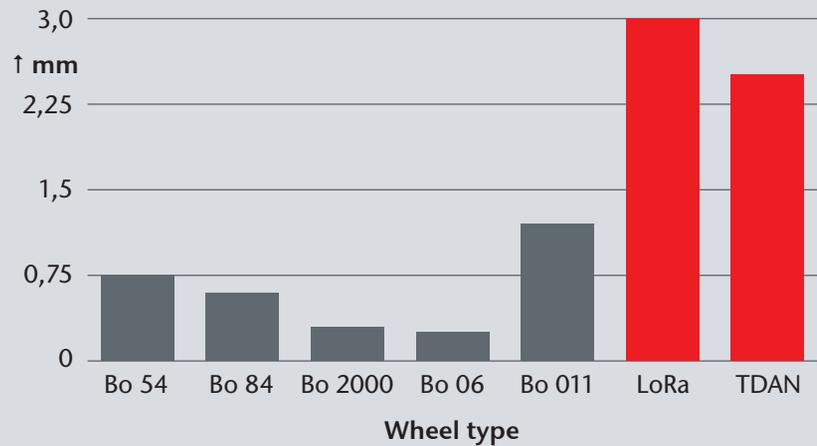
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Facts & Figures

For every purpose the correct design

The hard (grey) single-ring wheels are the most profitable solution for vehicles with good shock absorbers and average to good rail lines. The (red) two-ring wheels are custom-built for demanding rail lines or less well suspended vehicles. The considerably improved spring-deflection behaviour results from rubber springs subject to shearing stress.

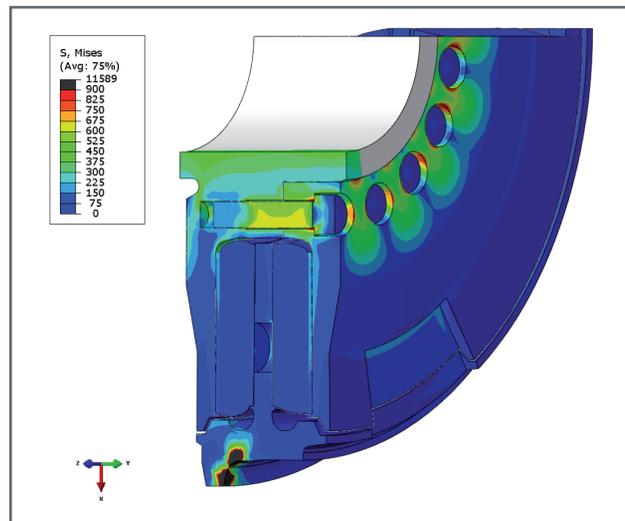
Spring deflections with a wheel load of 60 kN



Stress test passed!

The 3D image of LoRa shows the - calculated - load of the wheel during especially demanding travel around curves. It shows the lack in stress on the most important design elements of the wheel, so the required fatigue strength, especially in stress situations: Only the especially stressed tread - equipped with the high strength material Excelsior® - shows its known high values in the contact zones to the rail. Rubber rings and wheel centres themselves remain unaffected; the green yellow marking of the screwed connection is designed with high strength materials.

*Numerical fatigue analysis on the LoRa wheel.
Stress on the wheel during load case curve*



The fatigue strength test as part of the trial

All resilient wheels pass extensive, demanding test series before they are classified as suitable for service. The fatigue strength test on the roller rig is part of the test programme.

*Fatigue strength test on the
LoRa wheel on the roller rig*

