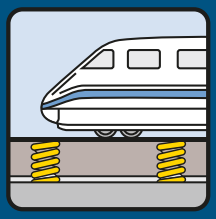
GERB

- Longer Lifetime for Ballast
- Longer Lifetime of Track Components
- Lower Life Cycle Costs
- Lower Maintenance Costs & Efforts
- Higher Transport Volume
- Higher Riding Comfort

NOVODAMP® FOR TRACKBEDS

Smoothing of Stiffness Transition Zones with NOVODAMP® Closed-cell Polyurethane Mats



SUDDEN CHANGES IN TRACK STIFFNESS AT TRANSITION ZONES

One of the basic challenges in fields of rail traffic is maintaining the railway infrastructure. Especially the zones with different substructures, like at the transition from ballasted to slab tracks or vice versa are challenging. They occur at superstructures, like bridges, tunnels, or culverts – there's probably no railway line without any stiffness transition zones.

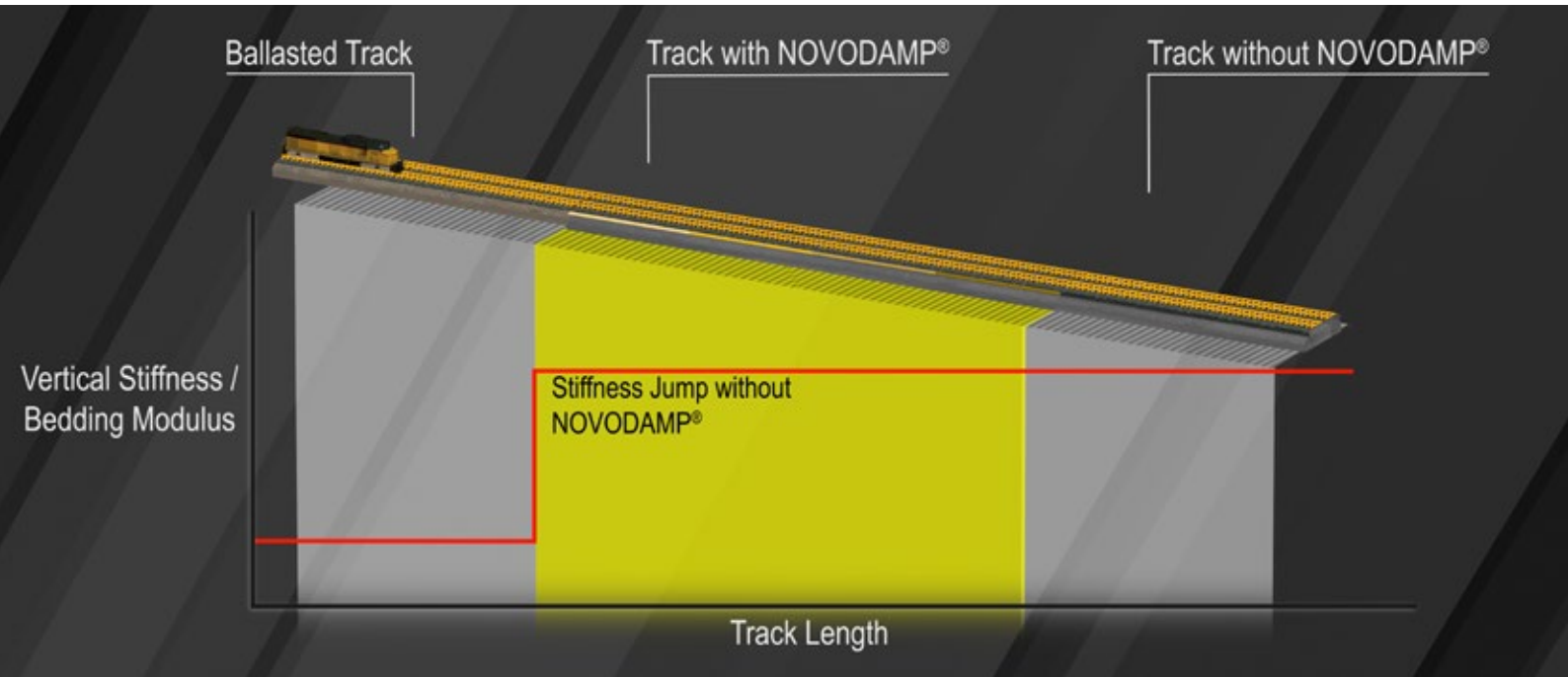
So, for instance, the bedding modulus respectively the elasticity of the supporting structure of the free track is significantly lower than the stiffness of a viaduct rigid slab track. Moreover, the reference design of Railways Application DIN EN 16432 demands, that no sudden changes in track stiffness occur at the transition.

Stiffness transition zones cause frequent need for conducting additional maintenance and reconstruction effort. In consequence, high direct and indirect costs and work expenditures must be expected. These costs are many times higher than for normal tracks. Other consequences are lower safety, lower comfort, and the reduction of track capacity as well as of traffic continuity in rail services. The most common problems are the degradation of ballast and track components, like clamps, clips, reels, and sleepers, as well as the rail deformation. And the main reason for all those problems is a sudden change of the elasticity.

In every vibration isolation system stiffness transition is already considered as standard – in the field of track construction special application areas become relevant, such as bridges / viaducts, tunnels, culverts, track switches (turnouts, railway stations.

SUBWAY LINE 5 | NOVODAMP® MAT MSS

CHINA



GERB SOLUTION FOR ALIGNMENT & SMOOTHING OF STIFFNESS TRANSITION ZONES

The main idea of the GERB solution is to compensate the sudden change of the stiffness and track elasticity. For an aligned and smooth transition, the high difference in stiffness and vertical displacement is overcome gradually, step-by-step. This leads to a clear reduction of this difference.
GERB provides a solution with NOVODAMP® Closed-cell Polyurethane: With it, GERB controls the elasticity of your track. After analyzing your special stiffness transition zone situation, the GERB experts select the optimal mat collection out of a rich portfolio of closed-cell polyurethane full-surface mats for you – for ballasted tracks and rigit slab tacks – in line with DIN EN 16432. And as GERB provides the complete package, the engineers support with words and deeds through the whole process.

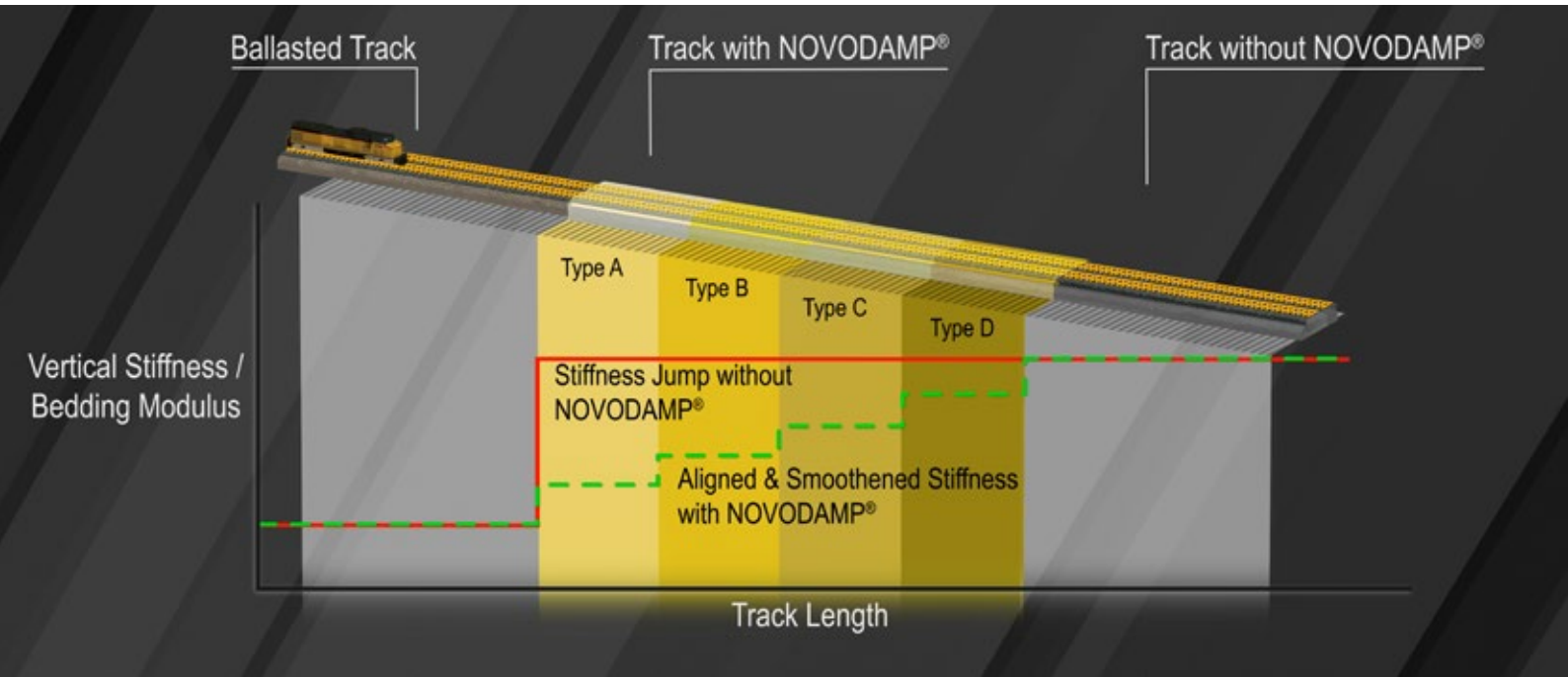
Advantages of NOVODAMP® Mats for Stiffness Transition Zones
+ Closed cell polyurethane
+ Mechanical loss factors of max. 0.1
+ High load capacity up to 650 tons/m²
+ Very low creeping
+ Fatigue safe
+ High resistance to aging
+ Extremely low water absorption (0 – 10 %)

+ BENEFITS

+ Longer lifetime for ballast (due to less crushing on contact of ballast and bridge deck and less subsidence)
+ Longer lifetime of track components (clamps, clips, reels, and sleepers – due to less hardening of ballast layer)
+ Lower life cycle costs
+ Lower maintenance costs & efforts
+ Higher transport volume
+ Higher riding comfort (track capacity and traffic continuity)

SRT DOUBLE TRACK | BALLASTED TRACK AT TRANSITION ZONES (BRIDGE / APPROACH SLAB)

THAILAND



+ RAIL TRANSPORT SYSTEMS

+ Heavy haul
+ High speed
+ Trams
+ Subways
+ Mass urban transit
+ Magnetic levitation

+ GERB SERVICES & CONSULTING

+ Technical consulting, Measurement & Tests
+ Research & Development
+ Engineering
+ Mounting, Installation & Supervising
+ Quality Management

About GERB

GERB is committed to the isolation and reduction of vibrations. The fundamental objective of the company group is to protect people, buildings and facilities from vibrations, shocks, dynamic load transmission, and structure-borne noise and to solve settlement problems, whether caused by people, machines, wind, earthquakes, environmental or natural disasters or other influences. It's about improving living, labor and comfort - for the GERB industry sectors and respective application areas:

MANUFACTURING, INDUSTRY & ENERGY
(Metal Forming, Industrial Machinery, Power Generation)

ARCHITECTURE & CONSTRUCTION
(Buildings & Extensions, Structures)

TRANSPORTATION & INFRASTRUCTURE
(Rail Tracks, Shipbuilding)

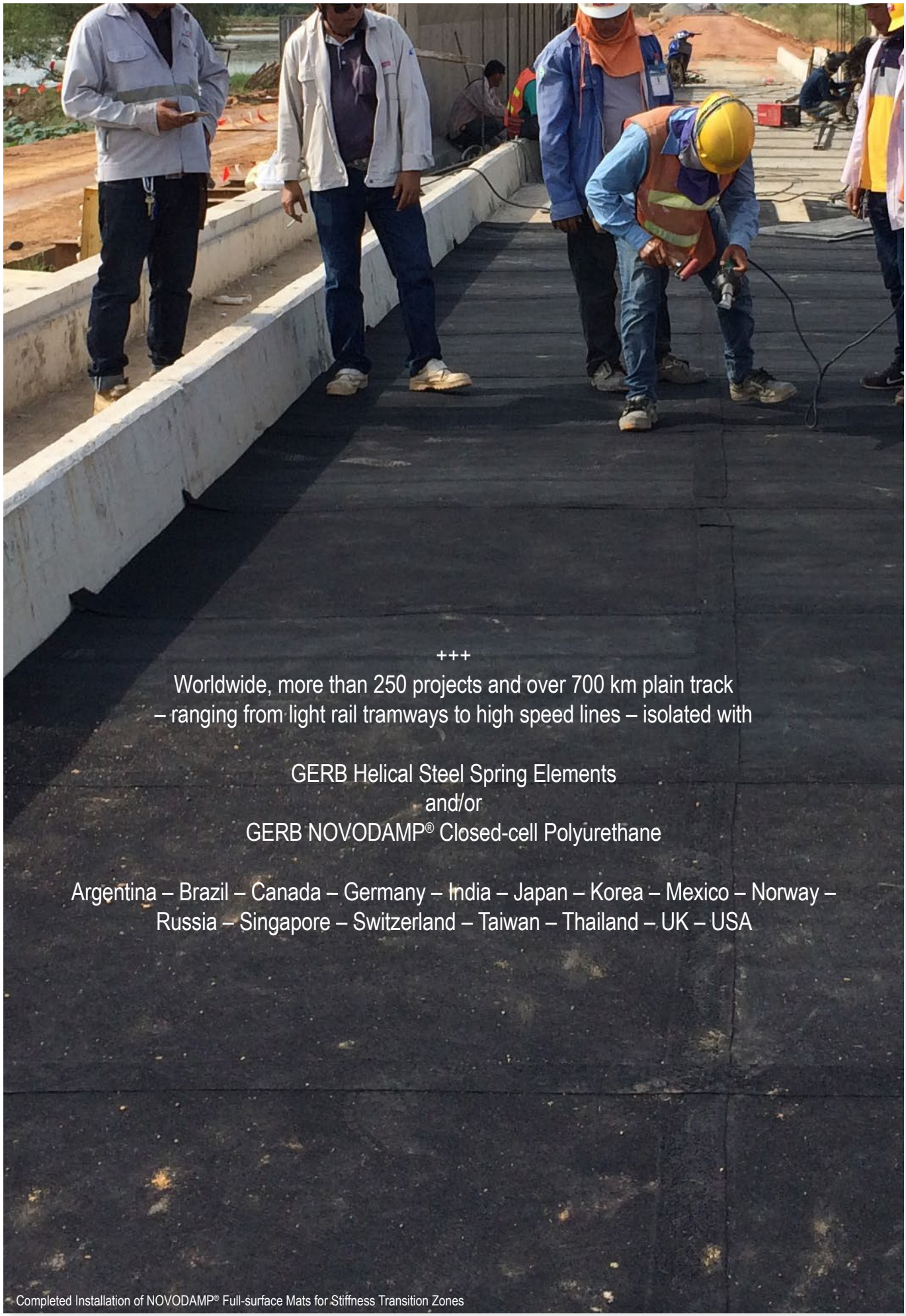
They are flanked by the GERB Special Applications Earthquake / Seismic Protection, Pipework Damping, Tuned Mass Damping (TMD), Microseismic Isolation, and Restoring & Upgrade.

With the onset of the machine age – the first industrial revolution – the need for protection against noise and vibration had arisen. That's why, in 1908, a young German engineer, named William Gerb, developed an innovative solution by installing vibration intense machines on spring elements. In subsequent years, this founding idea of the GERB company group was continually developed further – together with machine manufacturers, engineers and architects – and thus numerous new solutions of dynamic problems were made available.
The GERB list of superlative project references is long: If thinking about the elastic support of remarkable machines, such as the largest steam turbines/generators, forging screw presses, and forging hammers in the world, the vibration isolation of hundrets of buildings, long-span and slender structures, amongst them, the tuned-mass damping of skyscrapers, like the Burj Al Arab and the steel spring support of the concert halls of the Hamburg Elbphilharmonie, or the elastic support of hundrets of kilometers of rail track, like the Crossrail London, the Tokyo subway, or the Miami Brightline.

GERB designs and supplies vibration control systems within the GERB Product Proups Helical Steel Springs, viscous fluid Dampers (Viscodampers®), Tuned Mass Dampers (TMD), NOVODAMP® Closed-cell Polyurethane, and Combined & System Solutions as well as Tailor-made/Customized Solutions. And finally, the clients profit from further GERB Services & Consulting: Technical Consulting, Measurement & Tests, Research & Development, Engineering, Mounting, Installation & Supervising and – of course – Quality Management.

The company's global headquarters resides in Berlin. Worldwide, the GERB group operates subsidiaries at numerous locations, has several hundred employees, and is supported by other partners.

REFERENCES



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Worldwide, more than 250 projects and over 700 km plain track
– ranging from light rail tramways to high speed lines – isolated with

GERB Helical Steel Spring Elements
and/or
GERB NOVODAMP® Closed-cell Polyurethane

Argentina – Brazil – Canada – Germany – India – Japan – Korea – Mexico – Norway –
Russia – Singapore – Switzerland – Taiwan – Thailand – UK – USA

Completed Installation of NOVODAMP® Full-surface Mats for Stiffness Transition Zones

GERB

worldwide

Vibrations can be controlled wherever they occur

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Certified: DIN EN ISO 9001 et al.

Interested in detailed information or individual consulting service? Please contact us!

NOVODAMP® for Stiffness Transition Zones, EN | As of 2021/09