SIKA ICOSIT RAIL GROUT

System solutions for fixation of LRT tracks

LONDON TRACKWORK INC.

BUILDING TRUST

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- Embedded & road crossings
- Elastic rail fixing- Discrete Fixation
- Light Mass Spring Systems
- Lawn Track

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FIELDS OF APPLICATION

Icosit KC 330 series

- KC 330/10 Undersealing baseplates (discrete) and continuous for heavy loads (crane tracks etc.)
- KC 330 FK Flexible adhesive for fixing filler blocks

Icosit KC 340 series

- KC 340/35 Continuous undersealing and embedded (floating) rail designs for tram systems - Low Modulus
- KC 340/45 Continuous undersealing of grooved and T-rails (Light Rail) - Medium Modulus
-
- KC 340/65 Continuous undersealing of grooved and T-rails - High Modulus
- KC 340/4 Discrete fixation (undersealing baseplates) for light rail systems
- KC 340/7 Discrete fixation (undersealing baseplates) for railways (approved by German Railways DB AG)

Embedded Rail Design

- In-street installations
- Embedded (floating) rail installations
- Continuously undersealed rail

Main Advantages:

- Insulation against leakage of stray currents;
- Reliable track alignment (height adjustable);
- Levelling substrate tolerances;
- Low maintenance > Low life cycle costs;
- Reduction of vibration and mechanical wear (rail and rolling stock);
- Strong bond between rail and substrate limiting exposure of water/ice and salt on concrete reducing the cracking of the concrete;
- Emergency vehicle accessibility;
- Aesthetically pleasing finish.

Icosit KC System ERS

Embedded Rail System

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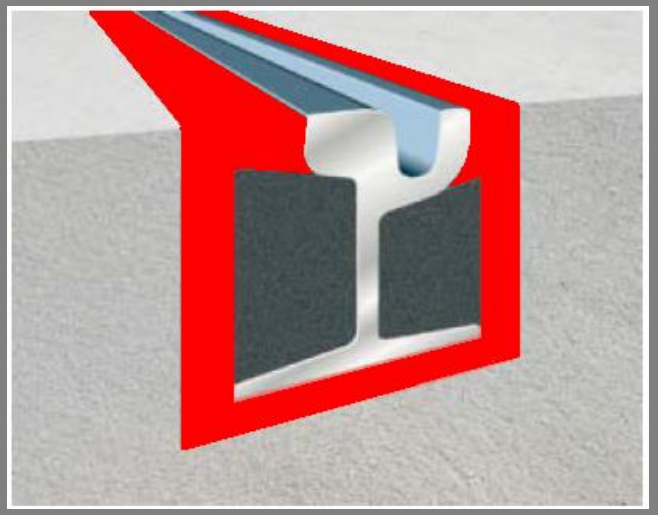
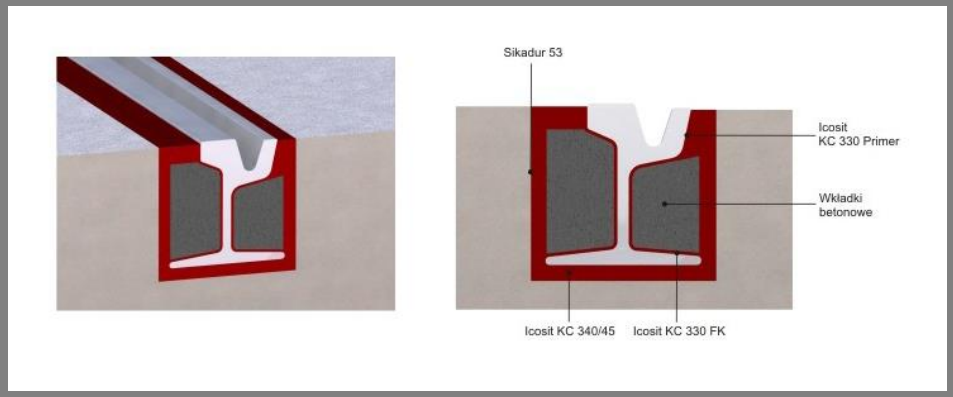
Icosit KC System ERS

Embedded Rail System





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Icosit KC System ERS
Embedded Rail System

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Embedded Rail System

City of Elbląg, Maja Street

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Warsaw, Rotary Dmowskiego

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Tramdepot in
Zurich, Switzerland

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Icosit KC System ERS
Embedded Rail System - Mainline

Bridge of Hungarian Railways with ERS in steel trough (Budapest circular line)

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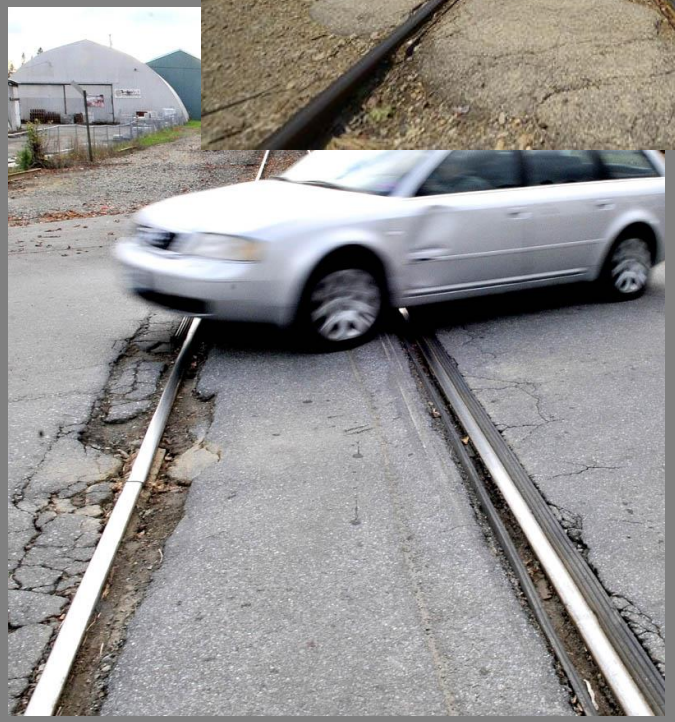
Icosit KC System ERS

Road Crossings- Embedded vs. rubber boot



Windsor, ON road crossing after 22 years in service

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The Huron Church crossing in Windsor Ontario is the busiest grade crossing in North America. The volume of cross-border traffic that passes over its nine lanes exceeds 15,000 vehicles per day of which 12,000 are heavy trucks!

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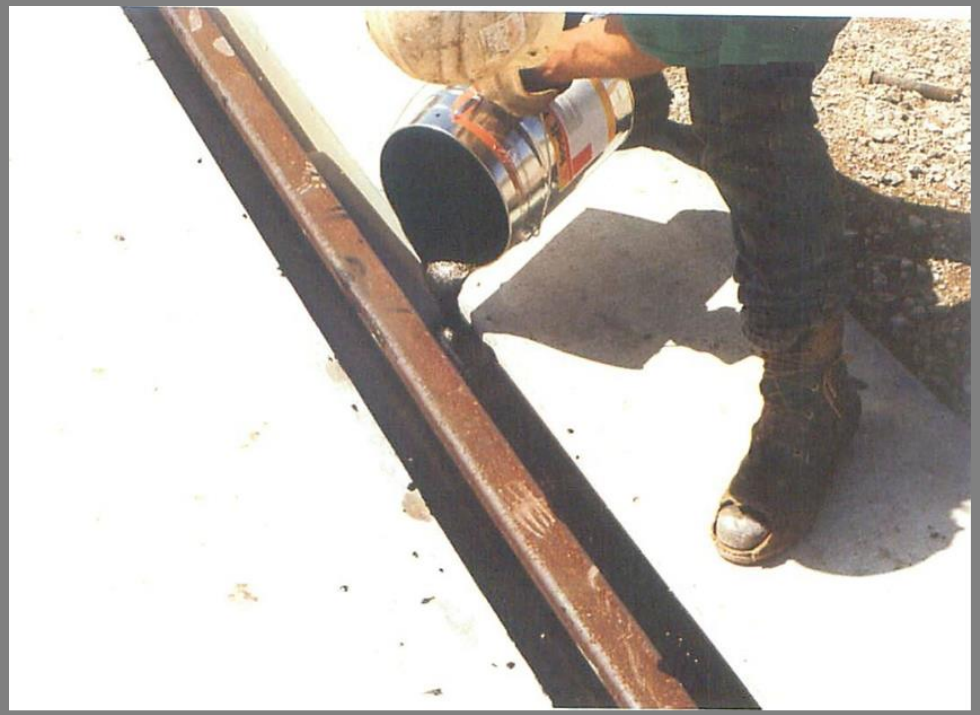
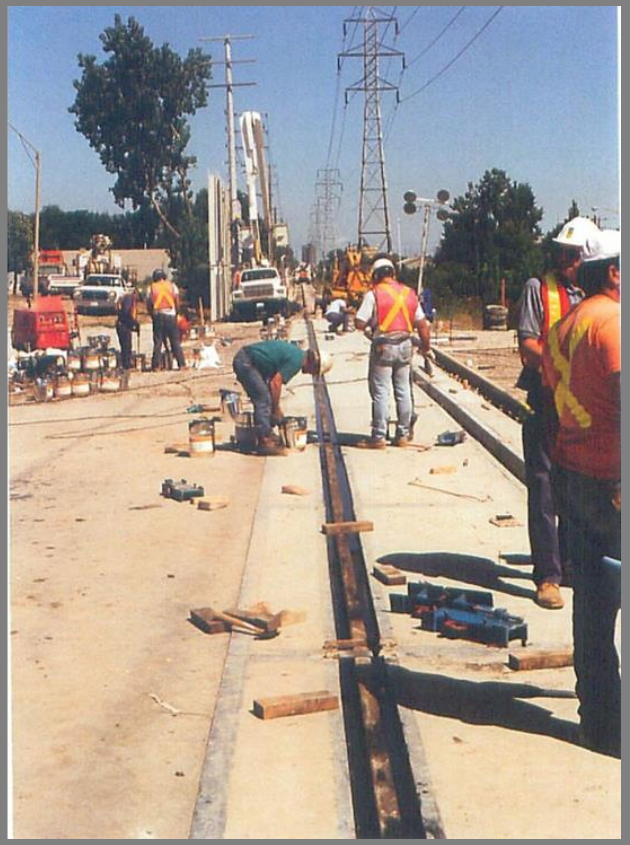
The crossing was constructed in 1992 using rail embedded in Icosit.





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Icosit after 22 years.

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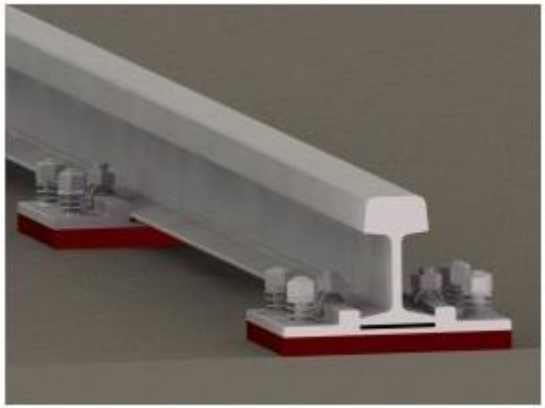
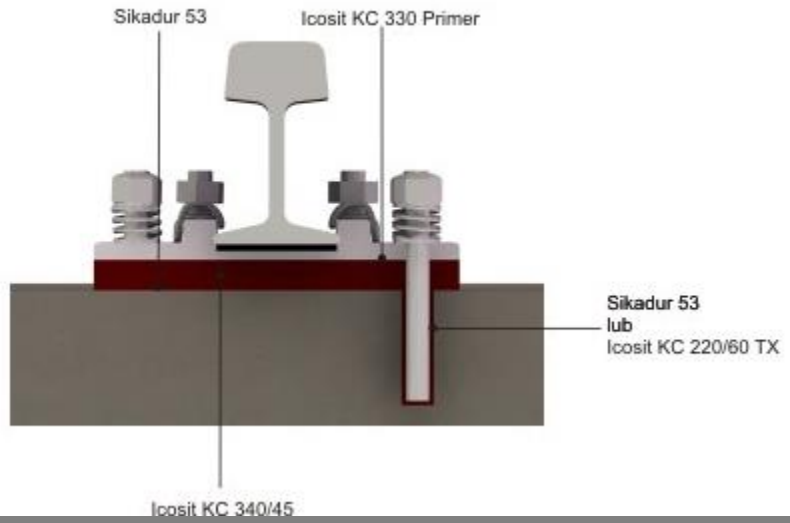
Elastic Rail Fixing

Discrete Fixation





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Discrete Fixation

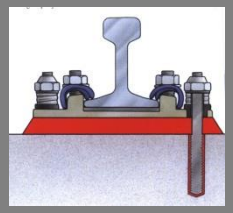
- Street independent installations
- Discrete, ballastless Fixation

Main Advantages:

- Insulation against leakage of stray currents;
- Reliable track alignment (height adjustable);
- Levelling substrate tolerances;
- Long durability, low maintenance > Low life cycle costs;
- Reduction of vibration and mechanical wear (rail and rolling stock);
- Less stress peaks on anchor bolts (shear forces) because of strong bond between slab track and baseplate
- Aesthetically pleasing finish, cleanliness
- Watertight undersealing > No erosion of concrete under the baseplate (hydraulic wear)

Icosit KC System

Discrete Fixation



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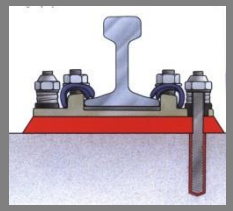
Icosit KC System

Discrete Fixation



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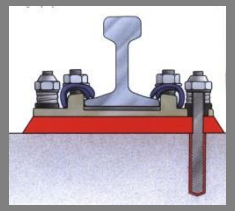
Icosit KC System
Discrete Fixation



„Buehlertalbrücke“
(Stuttgart region)
- 25 years in service
- Mainline of DB AG
(German Railways)

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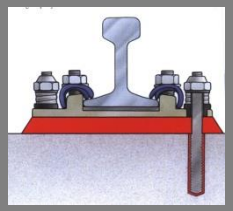
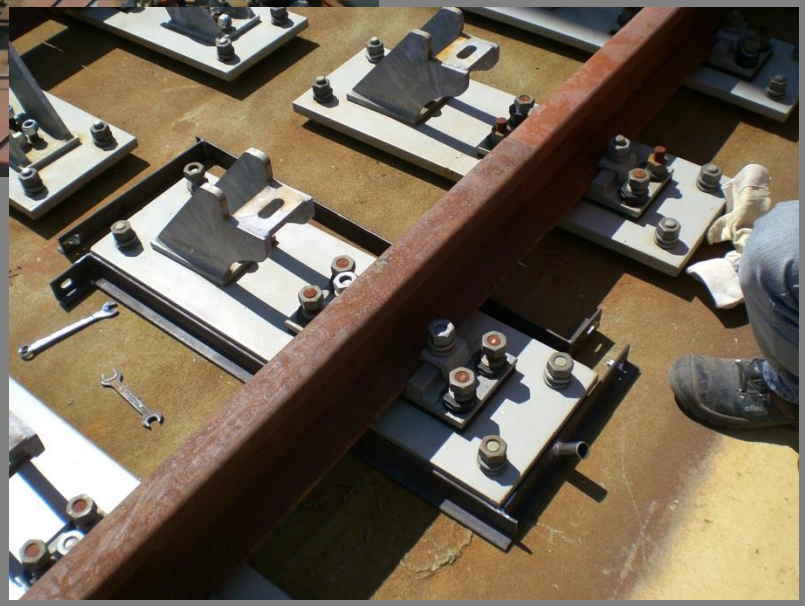
Icosit KC System
Discrete Fixation



„Hochdonnbrücke“ (North of Germany)

- Reconstruction during service!
- Mainline of DB AG (German Railways)



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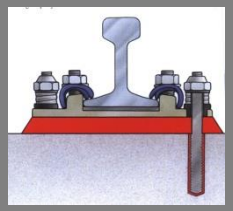
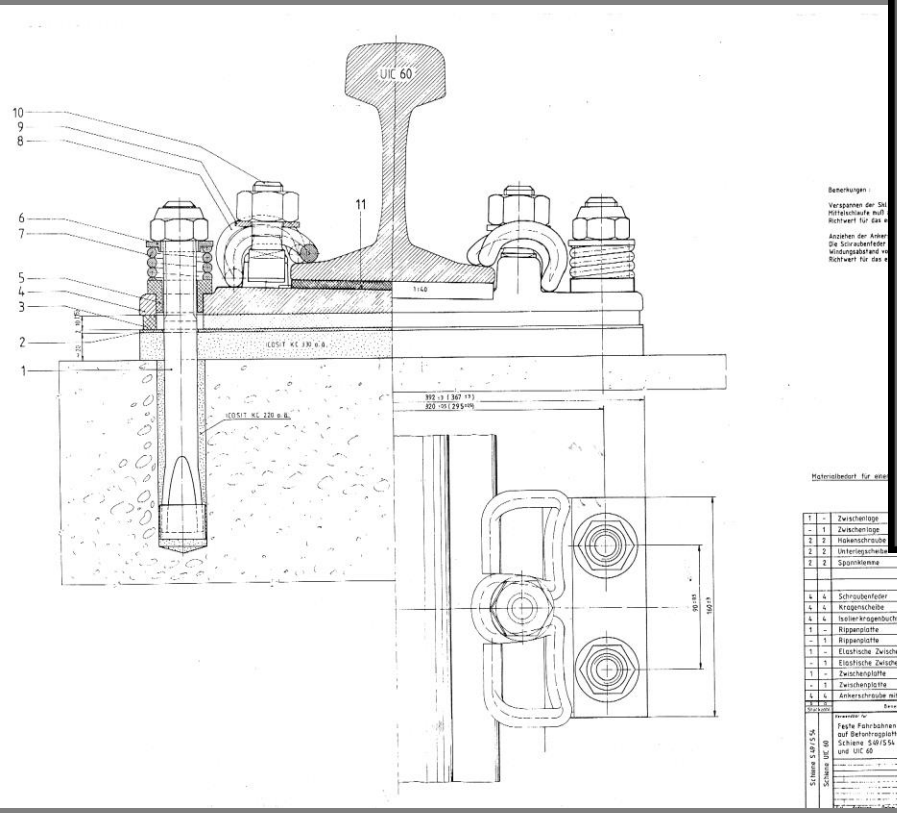
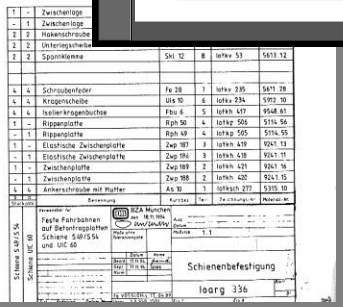
Icosit KC System

Discrete Fixation



System loarg 336





log 04.9000 April 2014.pdf - Adobe Reader

Datei Bearbeiten Anzeige Fenster Hilfe

Werkzeuge Signieren Kommentar

Produktbezeichnung	Hersteller	zulässige Schichtdicke	Verarbeitungs-temperatur	Verarbeitungs-zeit bei 20° C	Aushärtezeit bei 20° C	Aushärtezeit bei 5° C	zulässiger Untergrund
V1/50 Pagel-Vergussmörtel	Pagel Spezial-Beton GmbH&Co. KG	20 – 120 mm	5 – 35 °C	> 120 min	> 24 h	> 72 h	Betonfahrbahnplatten
V2/40 Pagel-Schnellvergussmörtel	Pagel Spezial-Beton GmbH&Co. KG	20 – 60 mm	5 – 35 °C	> 20 min	> 2 h	> 2 h	Betonfahrbahnplatten
Silikal R 16 Vergussmörtel	Silikal GmbH & Co. KG	5 – 25 mm	–10 – 35 °C	> 12 min	> 2 h	> 3 h	Betonfahrbahnplatten
Silikal R 17 Vergussmörtel	Silikal GmbH & Co. KG	5 – 25 mm	–10 – 35 °C	> 15 min	> 2 h	> 3 h	Betonfahrbahnplatten
Icosit KC 220/60 TX	Sika Deutschland GmbH	15 – 100 mm	5 – 35 °C	60 min	> 18 h	> 48 h	Betonfahrbahnplatten
Icosit KC 330/10	Sika Deutschland GmbH	15 – 60 mm	5 – 35 °C	8 min	> 3 h	> 8 h	Beton-u.Stahlfahrbahnplatten
Ⓒ Sikadur-12 Norge	Sika Deutschland GmbH	5 – 30 mm	–10 – 30 °C Ⓐ	10 min	> 2 h	> 4 h	Betonfahrbahnplatten
Ⓑ Icosit KC 340/7	Sika Deutschland GmbH	15 – 60 mm	5 – 35 °C	8 min	> 7 h	> 24 h	Beton-u.Stahlfahrbahnplatten

Bemerkung:
Die Aushärtezeiten der Untergussmaterialien sind abhängig von der Temperatur. Genaue Angaben sind den Datenblättern der Hersteller zu entnehmen.

{9139047025}

EBA
Deutsche Bahn AG
DB Systemtechnik
Oberbautechnik-T/F 61

Allgemeine Zulassung
Freigabe als Regelbauart
log 04.9000

CAD-Zeichnung
Nicht von Hand ändern

Zugelassene Unterguss-materialien

Deutsche Bahn AG
DB Systemtechnik

Icosit products officially approved
by German Railways (DB AG)
>> on concrete slab and steel deck

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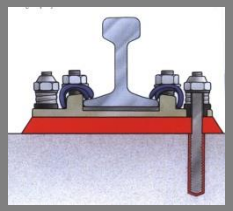
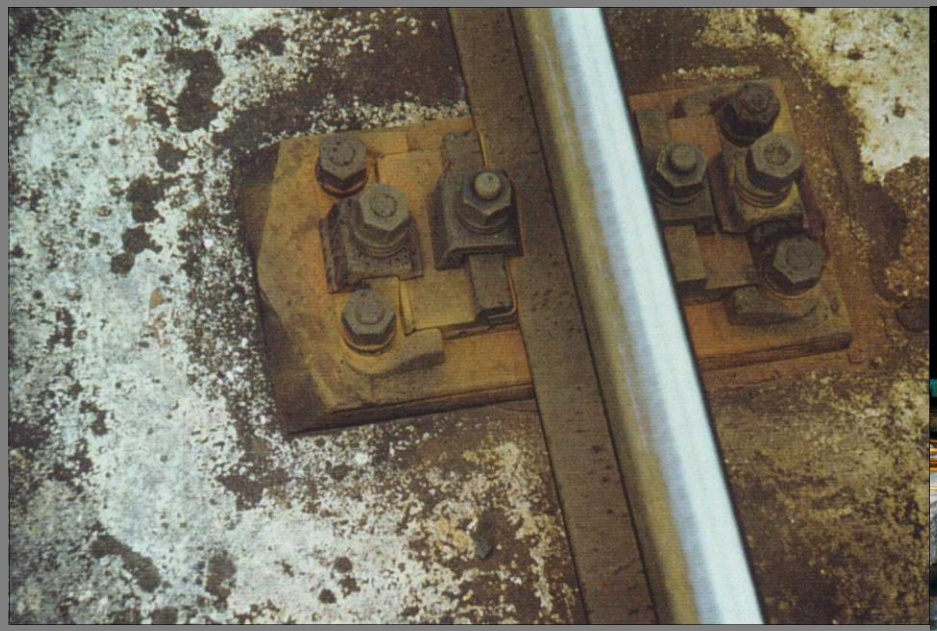
Discrete Fixation





Tearing off by mechanical jacks

Proofen durability:
1971 installed discrete fixation on a bridge of German Railways was removed in 1999 (still in good order) for testing at University of Munich.
Result: Only 6% loss of flexibility!
After 28 years still ok for many more years!

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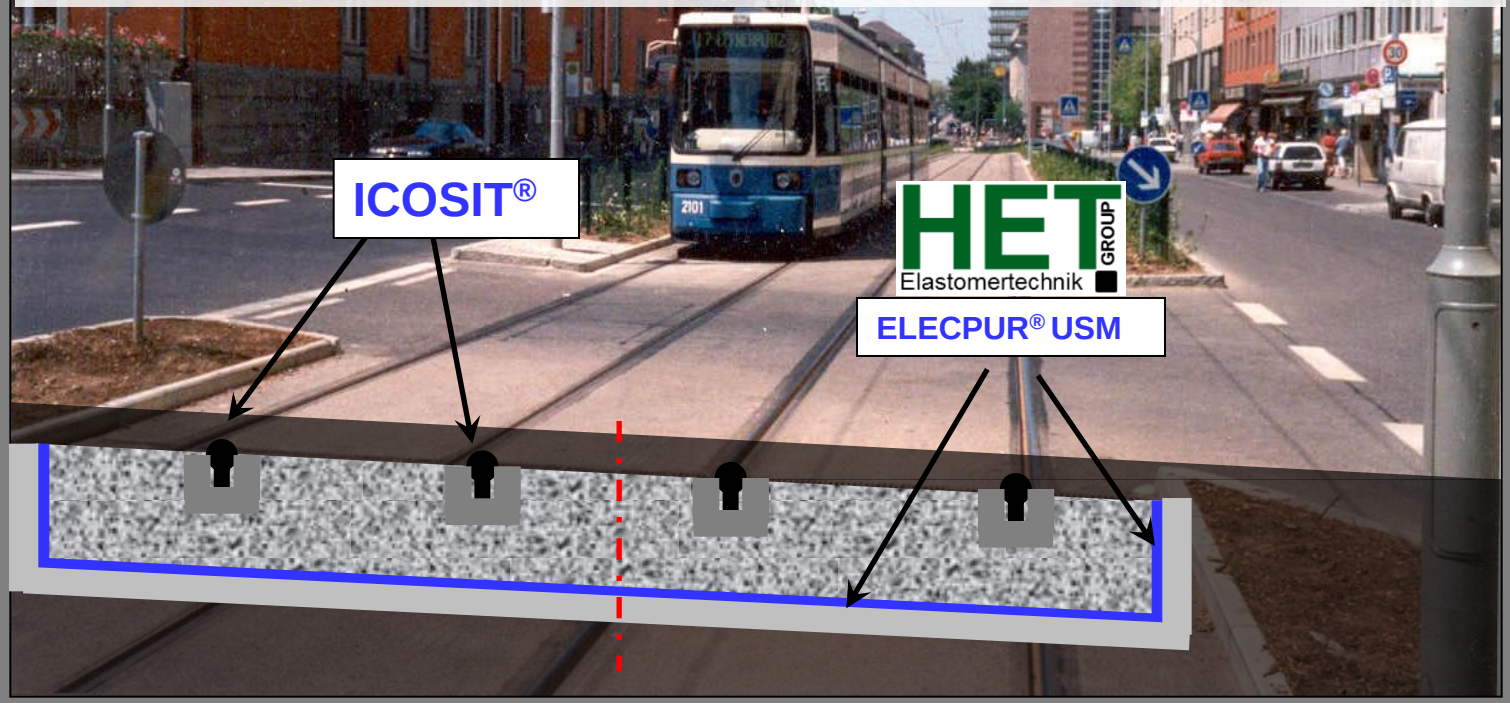
Light mass-spring systems

- A typical light mass-spring-system is a slab-track system with a concrete slab of 20 to 30 cm height on a full-surface layer.

- LMSS has established itself to a standardized solution for grooved rail systems in various cities.



Light mass-spring systems

- In-street installations
- Embedded (floating) rail installations
- Continuously undersealed rail

Main Advantages:

- **Dramatic reduction of vibration in key areas/intersections where noise/vibration are of major concern;**
- Insulation against leakage of stray currents;
- Reliable track alignment (height adjustable);
- Levelling substrate tolerances;
- Low maintenance > Low life cycle costs;
- Reduction of vibration and mechanical wear (rail and rolling stock);
- Strong bond between rail and substrate limiting exposure of water/ice and salt on concrete reducing the cracking of the concrete;
- Emergency vehicle accessibility;
- Aesthetically pleasing finish.

Light mass-spring systems

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Light mass-spring systems

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Light mass-spring systems

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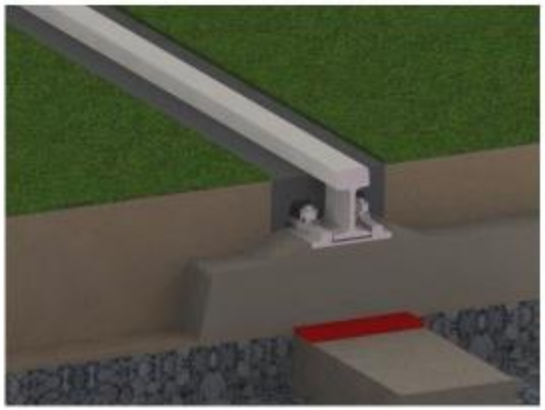
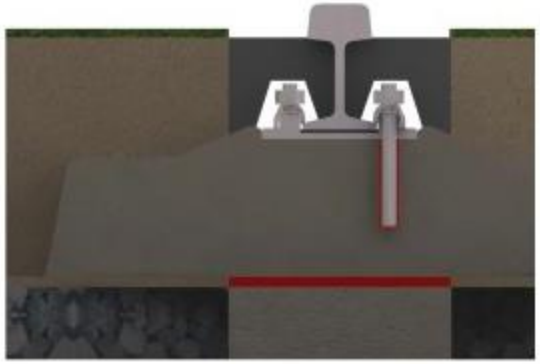
Elastic Rail Fixing

Lawn Track





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Lawn Track

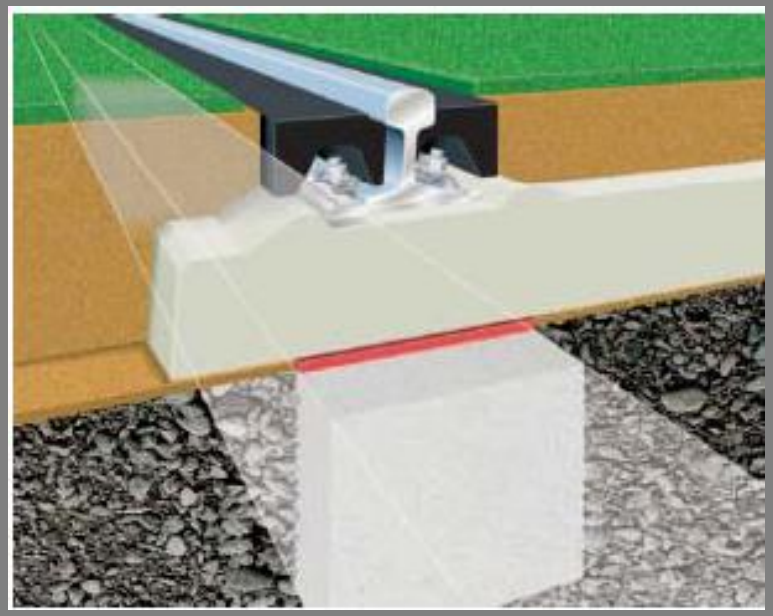
- Integrated installation
- Discrete Fixation

Main Advantages:

- Economical type of construction (use of standard elements from ballast track for rail fixation)
- Insulation against leakage of stray currents;
- Reliable track alignment (height adjustable);
- Levelling substrate tolerances;
- Low maintenance > Low life cycle costs;
- Reduction of vibration and mechanical wear (rail and rolling stock);
- Reduction of airborne and isolation of structure-borne sound
- Emergency vehicle accessibility;
- Aesthetically pleasing finish – „green village“ (Ecology/Sustainability)

Icosit KC System

Green Track



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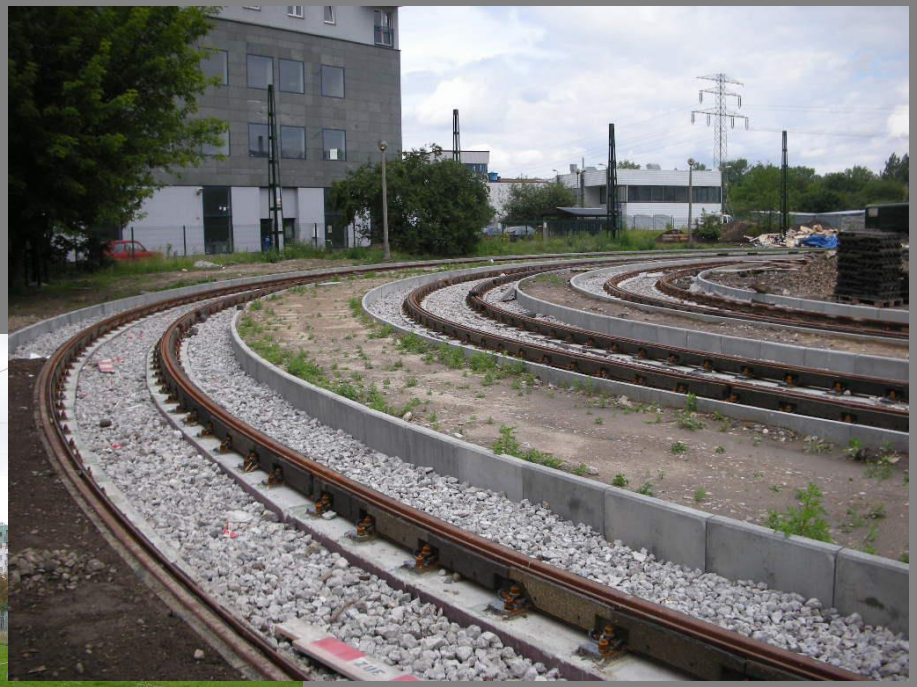
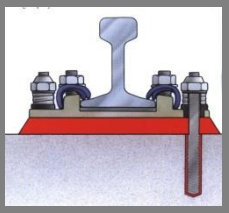
Icosit KC System

Green Track





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Icosit KC System

Green Track

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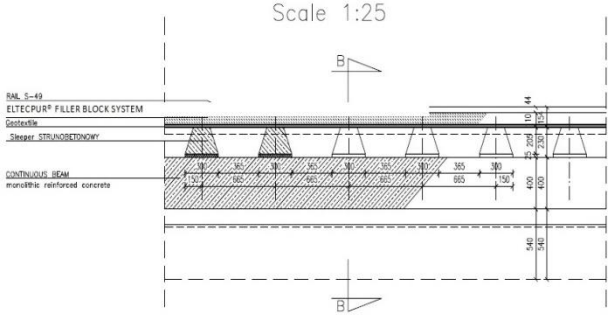
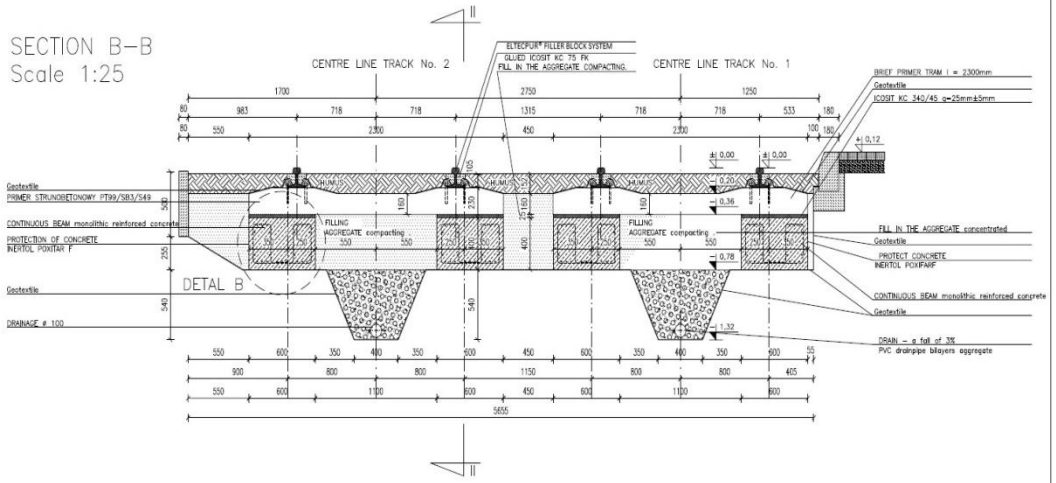
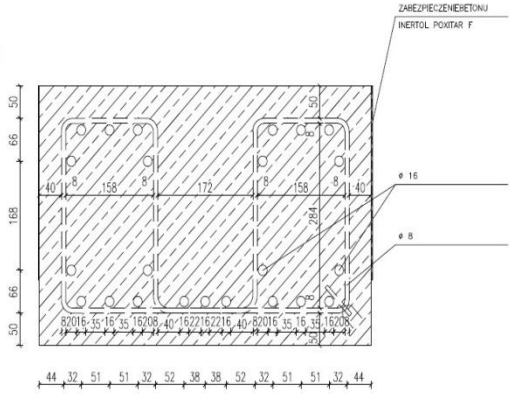
SECTION II–II
Scale 1:25



SECTION B–B
Scale 1:25



DETAL B
Scale 1:5

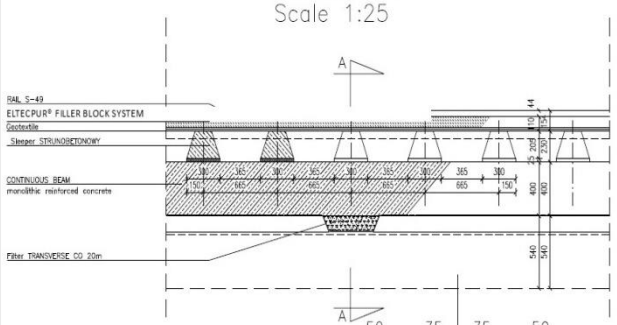


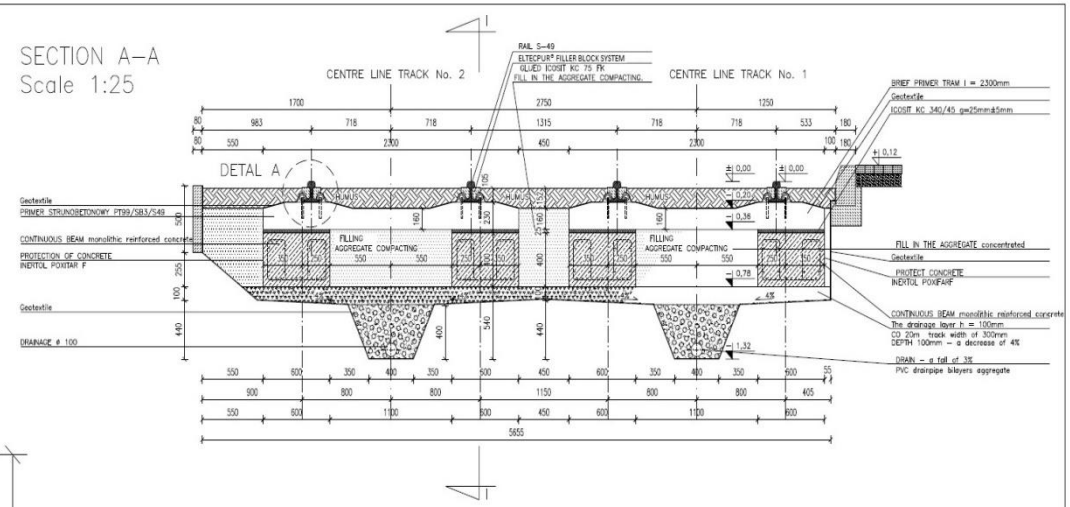
NOTE : tolerance of ± 3mm BOTTOM BASE

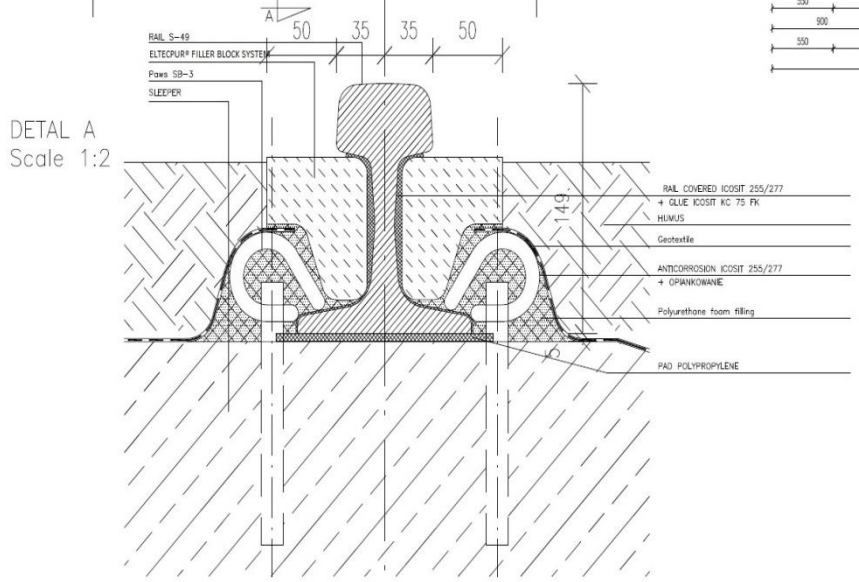
UMOWA:		RYS. NR.: –	WYMIARY RYS.: –
DATA OPRACOWANIA	11.2001 r.	Scale 1:25, 1:5	
PROJEKTOWAŁ	ANDRZEJ FEIL	NR UPR. DIK 3-4640-39/2000	PODPIS
OPRACOWAŁ	GRZEGORZ KUDELSKI		
SPRAWDZIŁ	–		
KREŚLIŁ	–		

DRAWING NAME: – – – –

DRAWING NO: –







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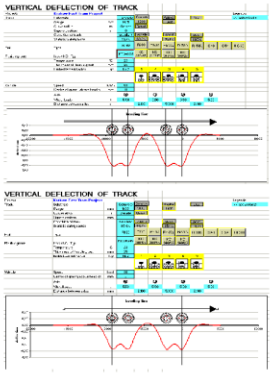
NOTE : tolerance of ± 3mm BOTTOM BASE

UMOWA:		RYS. NR.: –	WYMIARY RYS.: –
DATA OPRACOWANIA	11.2001 r.	Scale 1:25, 1:2	
PROJEKTOWAŁ	ANDRZEJ FEIL	NR UPR. OIK 3-4640-39/2000	PODPIS
OPRACOWAŁ	GRZEGORZ KUDELSKI		
SPRAWDZIŁ	–		
KREŚLIŁ	–		

DRAWING NAME: – – – –

DRAWING NO: –



Full scale test facility


Servo hydraulic test facility


Thermal analysis

System solutions for elasticity in tramway tracks

Reasons for elasticity in superstructures

- Increased comfort & smooth train operation
- Reduction of noise and vibration
- Larger intervals for maintenance respectively maintenance free tracks
- Improved track stability
- Reduced maintenance costs
- Improved life cycle costs (LCC) of the track
- Reduced structural stress in slab tracks

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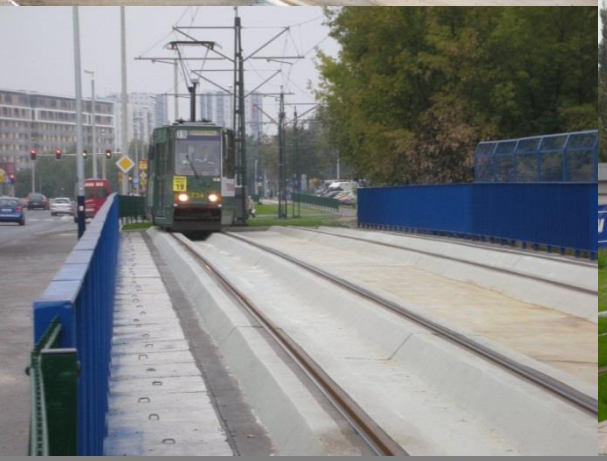


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Thank You

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