



**GANTREX<sup>®</sup>**  
ON TRACK. WITH YOU.

# The GANTREX Group of companies

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Founded in Belgium **45 years** ago

More than **300 people** employed

**ISO 9001 : 2008** certified



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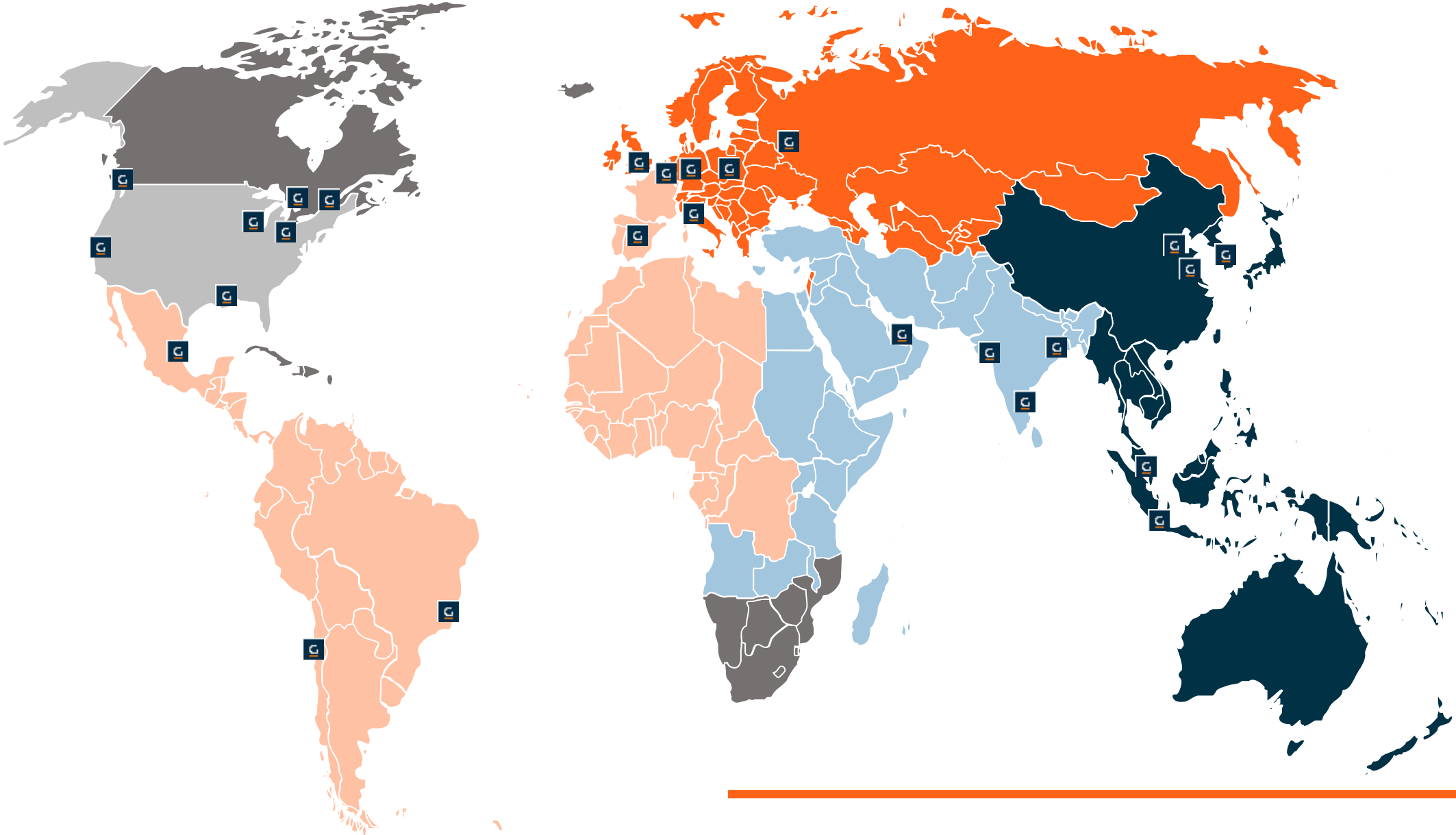
**Global leader** of crane and specialty tracks solutions  
completed by **substantial local presence** to be

**With you**

# Operational Centers



# Sales offices





# Industries we serve

Whether it's cranes traveling on rail or machinery moving on specialty tracks, you will find **GANTREX** there

AMONG OTHERS INDUSTRIES,  
FOR CRANES AND FOR SPECIALTY RAIL TRACKS



# Applications we cover

We offer a **diverse portfolio of capabilities**



Overhead  
Cranes



Cranes  
Trolley  
Tracks



Maintenance  
Pits



Automated  
Stacking Cranes



Rocket Movers



STS Crane  
Runways and  
Trolley



Automated  
Storage and  
Retrieval  
System



Super Heavy  
Cranes



Retractable Roofs

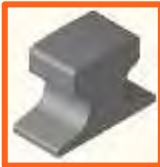
AND MORE ...

# Solutions we provide

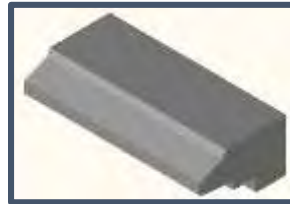
GANTREX' 45 years' experience and innovative solutions are offering the customer a **one-stop-shop** for reliable rail fastening **supply and installation** services

## Wide range of PRODUCTS

RAIL



RAIL TRENCH INFILL



GANTREX® CLIP



SOLEPLATE



GANTREX® PAD



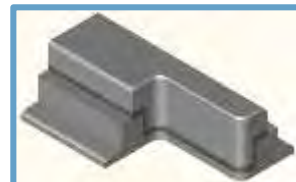
TRACK DESIGN & CONSULTANCY



INSTALLATION SERVICES FOR OVERHEAD AND GROUND TRACKS



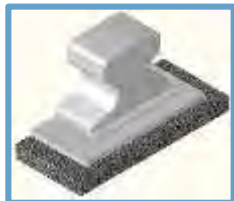
HYDRAULIC BUFFERS



SHORT RAIL



STEEL CHAIR



GROUTING MATERIAL



GIRDER TIE-BACK

RAIL WELDING





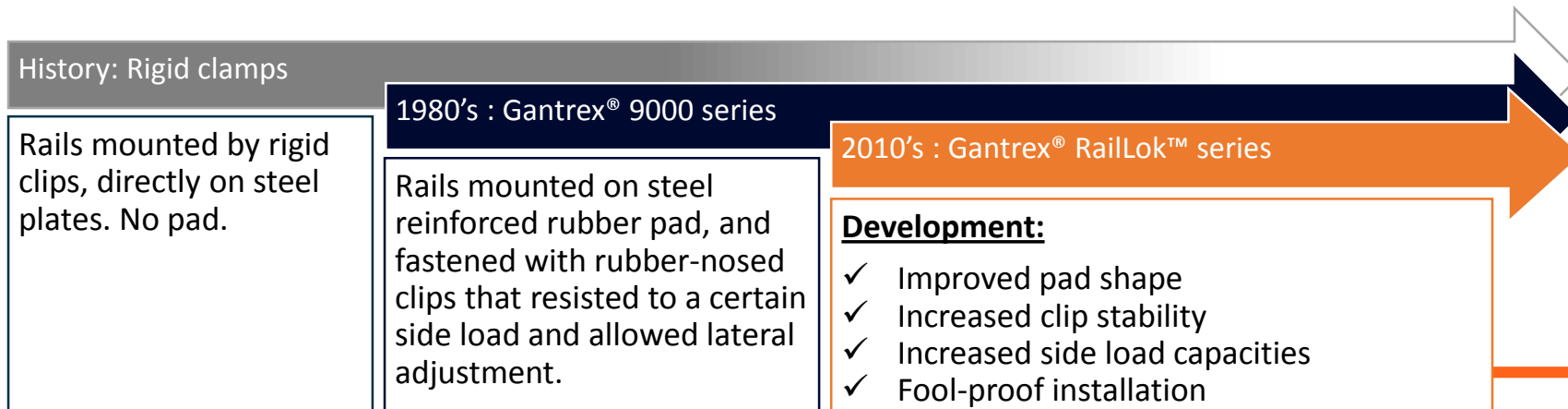
## Mission we undertake

*Gantrex' mission is to strengthen our **worldwide market leadership** in crane and **specialty rail tracks**, maximizing customer value through the development of our **employees**, our business practices and **innovative solutions** offering a **one-stop shop** for reliable rail fastening supply and **installation** services*

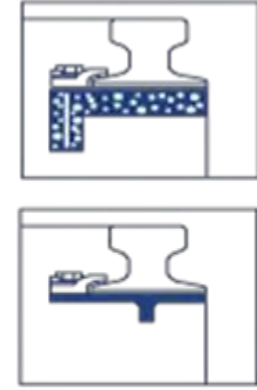
# Evolution of rail fastening system

## How have rail fastening systems evaluated over time?

- Rail pad:
  - Developed in 1970's
  - No improvement until 2012
- Rail clips
  - Rails fastened by rigid clips until end of 1970's
  - Development of rubber-nosed clips in 1980's (patent 1976)
  - New generation of RailLok™ clips in 2012



# What happens when the rails are not soft mounted?



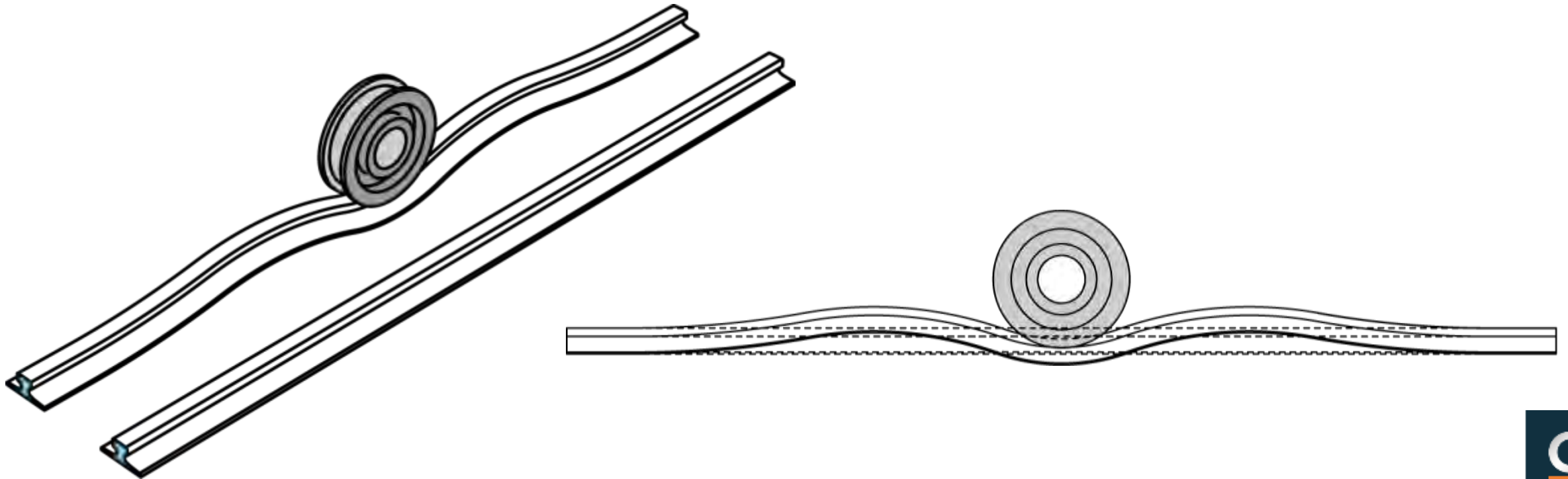
## Typical causes of Failures

- ✓ Steel girders : cracks in welds, wear, deformation, ...
- ✓ Concrete beams : loss of support contact, HB loosening, ...



# Why do you need Gantrex' soft mounting system?

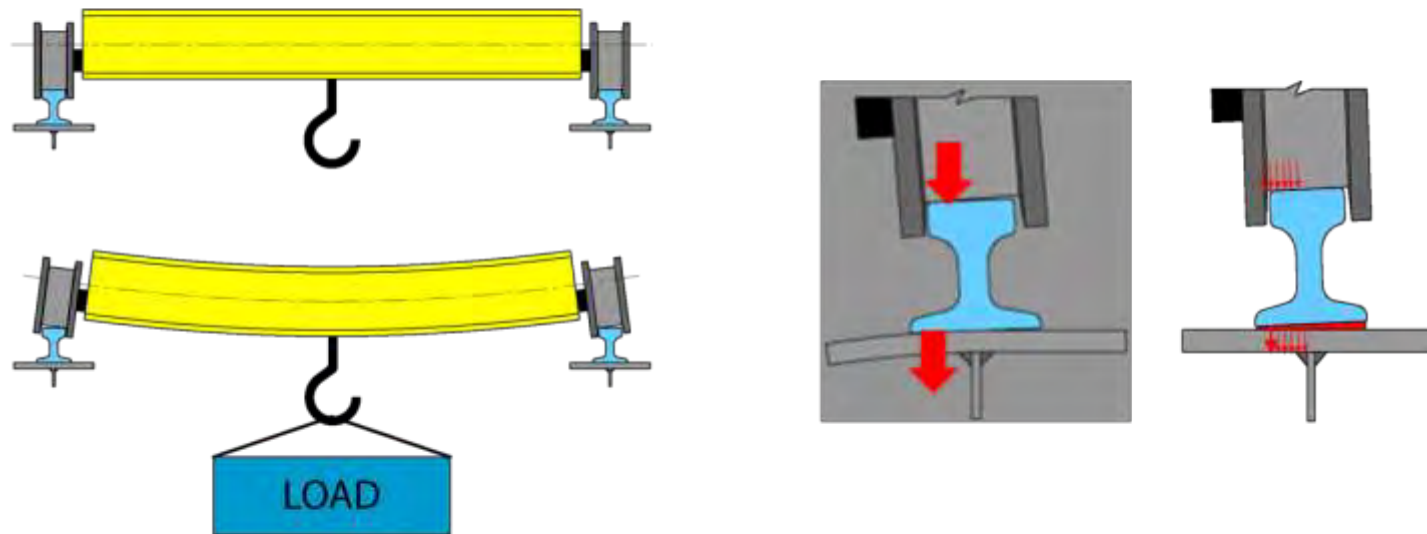
Bow wave effect: rail rises ahead and behind wheel causing high stress in certain areas





# Why do you need Gantrex' soft mounting system?

**Crane girder deflection** : Cross-travel crane movement causes girder deflection. Thus, creates additional stress on the rail system



Without rubber pad the loads are focused onto one area causing girder flange deflection

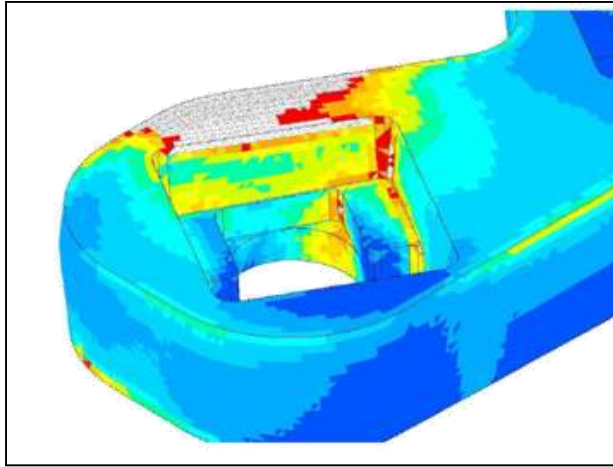
# What is Gantrex' soft mounting system?

Gantrex' RailLok clip with vulcanized rubber nose

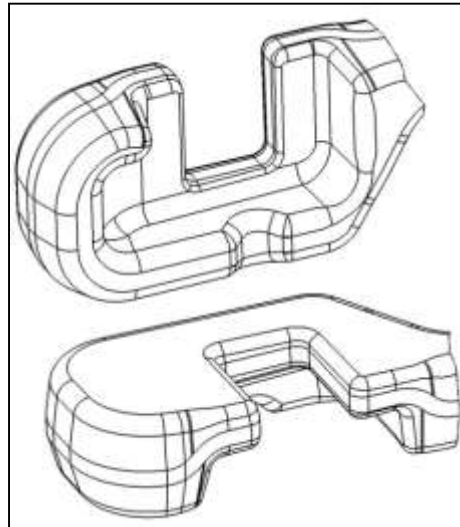
Gantrex' RailLok steel reinforced vulcanized rubber pad



# What is so good about Gantrex' RailLok clip?



Finite Element Analysis was used to optimize component geometry and minimize the amount of material needed to manufacture.



Optimization of nose shape is verified through testing



**UNNECESSARY LOWER COMPONENT MATERIAL HAS BEEN REMOVED RESULTING IN NARROW LOWER COMPONENT AND THE USE OF NARROWER SOLEPLATES AND LESS GROUT FOR LOWER TOTAL MATERIAL COST OF RAIL FASTENING SYSTEM.**

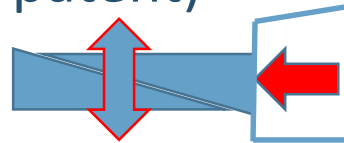


# What is double wedge in RailLok clips?

## Increased stability

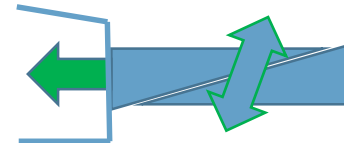
- Increased stability thanks to *additional wedge* in design (Gantrex® patent)

Self Locking  
Feature of the  
original patent

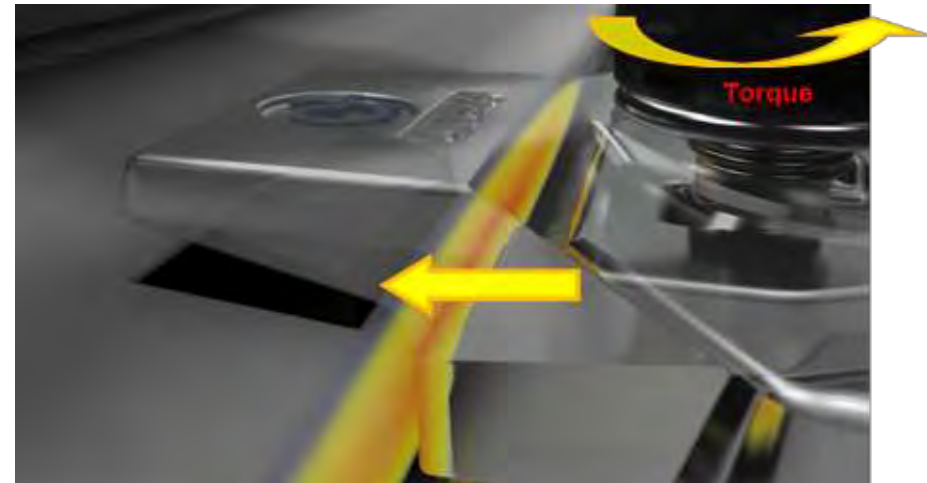


OLD

NEW



Double wedge  
feature of the  
new patent







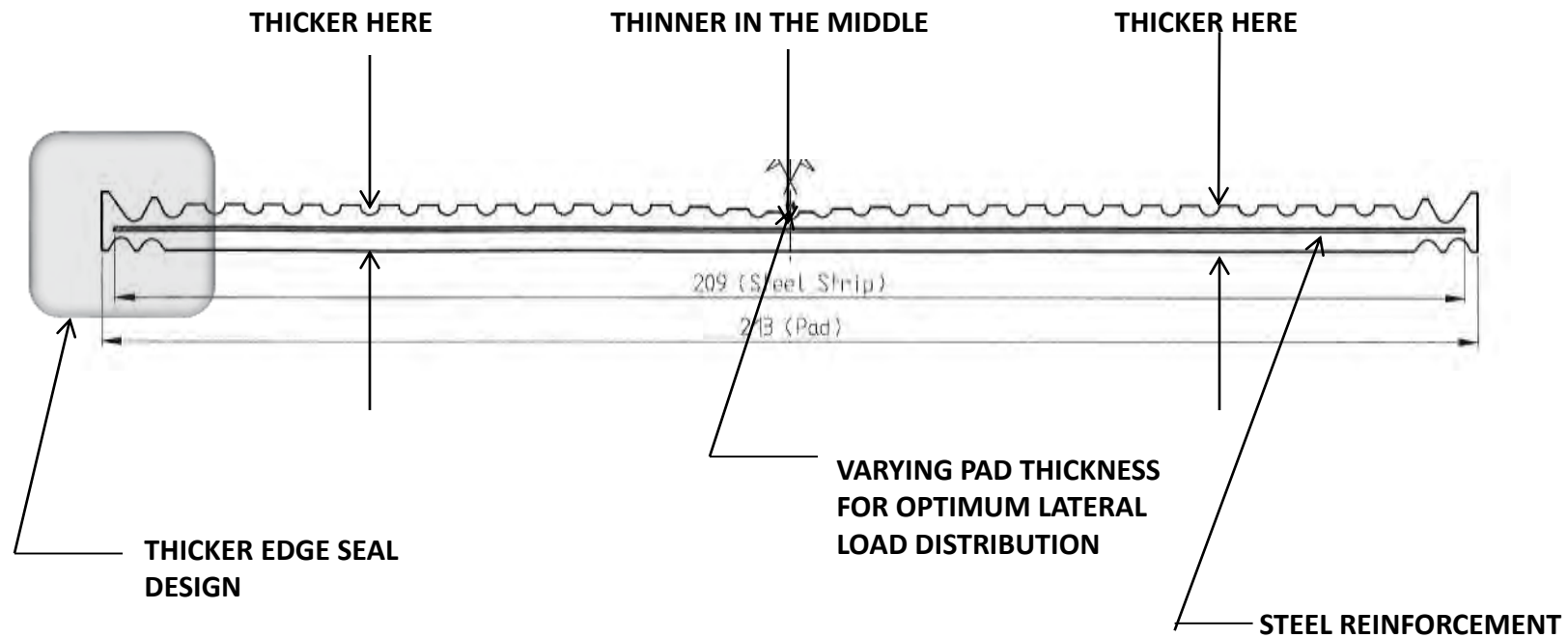
# What is vulcanised rubber nose on RailLok clip?

Vulcanisation – Process of treating rubber with sulphur at extremely high heat, high pressure to improve elasticity, strengthen or harden the material. This process is commonly used to bond rubber or rubber like materials to steel.

Due to this extremely high heat, high pressure process, the surrounding surface of the rubber is “not clean”.

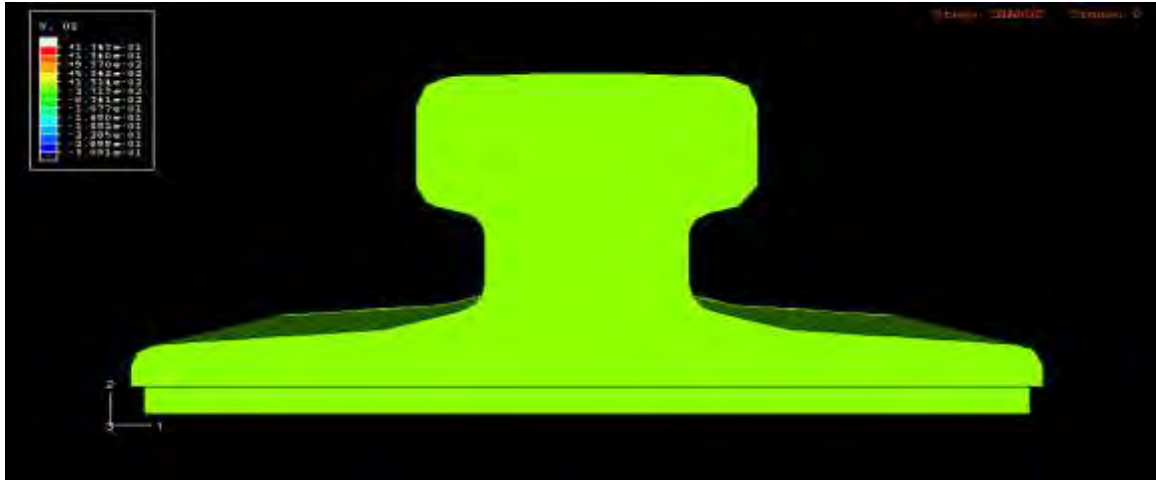
# What is so good about Gantrex RailLok pad?

## Gantrex RailLok pad

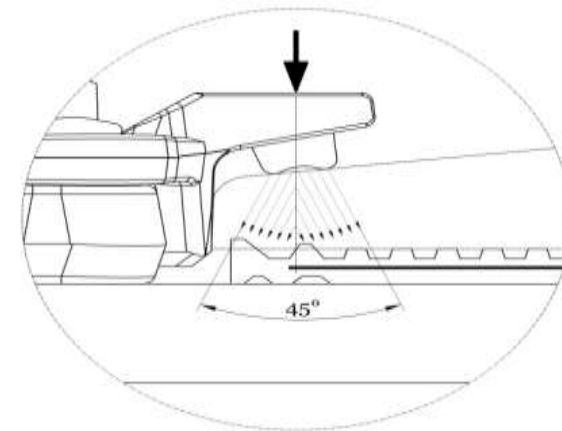


# How does the Gantrex' RailLok Pad works?

Rail and pad deformation simulation



Constant Pad Pressure



When wheel load pressure on the rail and pad is released, the new shape keeps sufficient compression on the pad due to the clip nose pressure to help keep it firmly in place.



# Gantrex' RailLok Pad Benefits

## Wheel Load Distribution



No Pad



With Pad

Enhance Load Distribution

## Intensity Level (psi)



800 psi



2100 psi



1100 psi



2700 psi

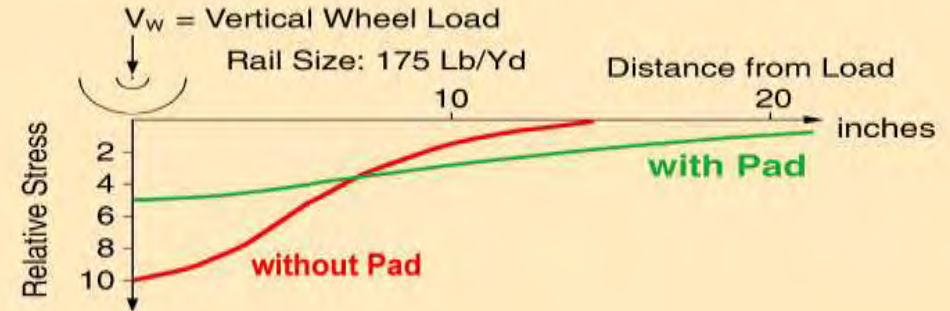


1600 psi



3200 psi

## Typical Stresses in Girder Web



Reduce Localized Stresses

Reduce Noise & Vibrations

Crane Long Travel Noise Readings

		dBA (Maximums)			Average	Difference
Without Pad	Forward	-	97	98	95.4	9.1
	Reverse	94	93	95		
With Pad	Forward	88	88	80	86.3	
	Reverse	88	86	88		
		dBA (Envelope)			Average	Difference
Without Pad	Forward	-	92	92	89	4.3
	Reverse	88	85	88		
With Pad	Forward	88	86	80	84.7	
	Reverse	86	82	86		

TABLE 1

Crane Long Travel Vibration Readings

O-pk Velocity (cm/s)	Without Pad	With Pad	% Insertion Loss
Pass 1	0.80	0.45	44
Pass 2	0.82	0.50	39
Pass 3	0.84	0.40	52
Pass 4	0.90	0.35	61
Pass 5	0.70	0.40	43
Average	0.81	0.42	48

# Project references (Jebel Ali CT4)



Jebel Ali Container Terminal 4  
(2016) – under construction

Contractor: BAM International &  
Dutco Balfour Beatty

Application: STS crane track and  
RMG crane track

Location: Jebel Ali (UAE)





# Project references (PSA Pasir Panjang Berth 26~41)



PSA Pasir Panjang Berth 26~41  
(2013)

Contractor: TOA Corporation

Application: STS crane track and  
RMG crane track

Location: Singapore

# Project references (Yangshan port)



Yangshan port (2016)

Contractor: CHEC

Application: STS crane track and  
RMG crane track

Location: Yangshan, Shanghai,  
China





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