

*'Engineering for perfection'*



**yapiray**

OUR PURPOSE  
IS TO SIMPLIFY  
*Perfection*





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Tekirdağ - Muratlı Railway Project





# DESIGN MANUFACTURE *Construct*

YAPIRAY, with the objective of serving in the construction of railway systems, was established within the body of YAPI MERKEZİ, as a specialist company by counting on the acquired experiences as its intellectual capital.

YAPIRAY has successfully carried out design and implementation experience, which includes various engineering solutions in railway systems, to the present thanks to well-organized human resources and specialized machinery park.

The main objective of YAPIRAY is to maintain sustainability and trust that has been established as a result of activities in the railway systems.

Since 1998, YAPIRAY is a multifunctional company which can manage every scale of [Turnkey Railway Projects](#) and [rehabilitation works](#) on railway lines under traffic operation with high engineering design solutions. At the same time YAPIRAY is the manufacturer of various types of prefabricated concrete elements for railway systems.

Bozkurt - Dinar Railway Renewal Construction

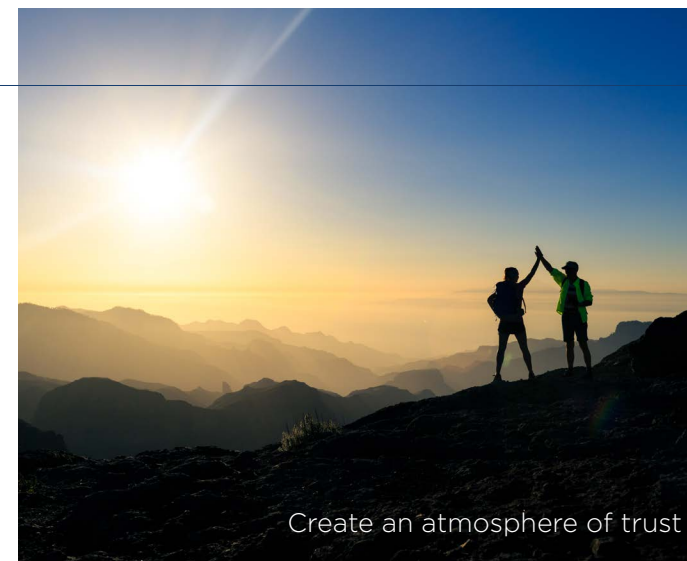




# VISION AND VALUES

*Add value to planet  
and to yourself*

- YapiRay redefines the rules of the game by inspiring itself, its customers and even its competitors.
- YapiRay's people are not afraid of making mistakes, rather learn from mistakes and trust each other to do better, to create fair environments where they feel safe and to make all their stakeholders feel this.
- YapiRay goes beyond the current boundaries, discover new possibilities and works by being aware of different opinions.
- YapiRay adapts the most suitable innovations to its ecosystem with an indomitable desire.
- YapiRay works with the responsibility of growing together to add value to its business, to its nature, to its country and to the planet.





# ACCURATE EFFICIENT *Continuous*

YAPIRAY's main objective is to fulfil railway constructions in the most efficient and accurate way with its huge experience in managing various projects under tough and challenging conditions simultaneously. Yet, this is not enough. That's why, we look forward to scaling up our targets continuously.



Awash - Kombolcha - Hara Gebaya Railway Project

# IMPROVE SUSTAIN *Rehabilitate*

Track rehabilitation is essential to achieve the sustainability of railway line operations. In consequently, YAPIRAY is ready to renew the railway lines across the globe. To the present, rehabilitation of 500 km railway lines has been a magnificent experience and success for YAPIRAY.



Irmak - Karabük - Zonguldak Railway Rehabilitation Project



# PRECISION DURABILITY *Quality*

YAPIRAY provides prefabricated concrete products with high-level of quality and long service life. RAYTON® and RAYKAS® sleeper plants are at the customers' services constantly for production of railway elements for main lines and turnouts. Moreover, YAPIRAY provides mobility of the plants nearby big-scale execution works based on special needs of the projects. Besides, settled plants are aiming to satisfy customers' needs all the time. YAPIRAY assures robustness of all products in accordance with EN 13230 series / AREMA based on the request of the employer.



# DESIGN DEVELOP *Realize*

Need-based products are the backbone of research and development for us. Thanks to our 20 years of knowledge in railway engineering, tailor-made solutions for each customer are provided by our in-house design department. YAPIRAY response to customer needs with innovative solutions including but not limited to European Norms, UIC and AREMA standards.



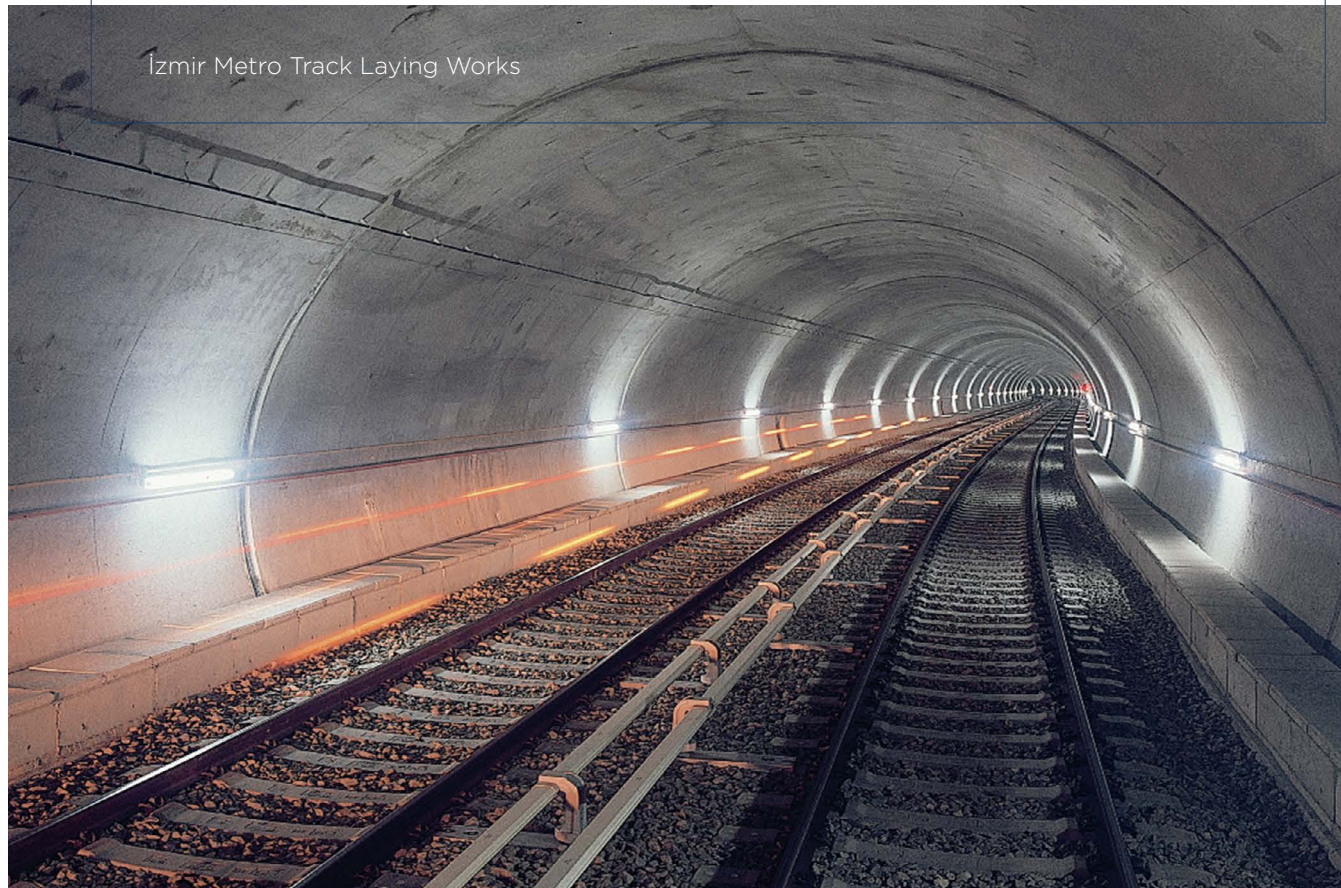


# FOCUS CONCENTRATE *Health and Safety*

YAPIRAY carries on being a forerunner in railway systems by providing quality solutions that combines its policies with experience. YAPIRAY plans and carries out all of its activities primarily by focusing on “Occupational Health and Safety”.

YAPIRAY aims to make its Quality, Occupational Health and Safety Management Systems sustainable with the active participation of all its employees and suppliers. We undertake to fulfil the legal and related legislative requirements to meet the obligations arising from the agreements and to provide the internal and external stakeholders with the requirements arising from their institutional responsibilities.

Izmir Metro Track Laying Works



# SUSTAIN ENVIRONMENT *Think Green*

As YAPIRAY we care about people. We connect them with their beloved ones but also we feel a responsibility to leave a better planet to future generations in shape than we found. From the design phase to the execution on site, we focus on reduction of our own carbon footprint by searching the optimum solutions.





# BEAT BEAT AGAIN *Challenges*

## Extreme Temperatures

from -30°C degree to 50°C degree

## Extreme Altitudes

under Bosphorus (-62 m) to the highest mountains of Ethiopia (+2800 m)

## Under Traffic Operation

track rehabilitation without interrupting the train operation  
(track usage 72 hrs. YAPIRAY, 48 hrs. TCDD)

## Well-Organized Operation

8 countries and 3 continents

## Supersonic Line

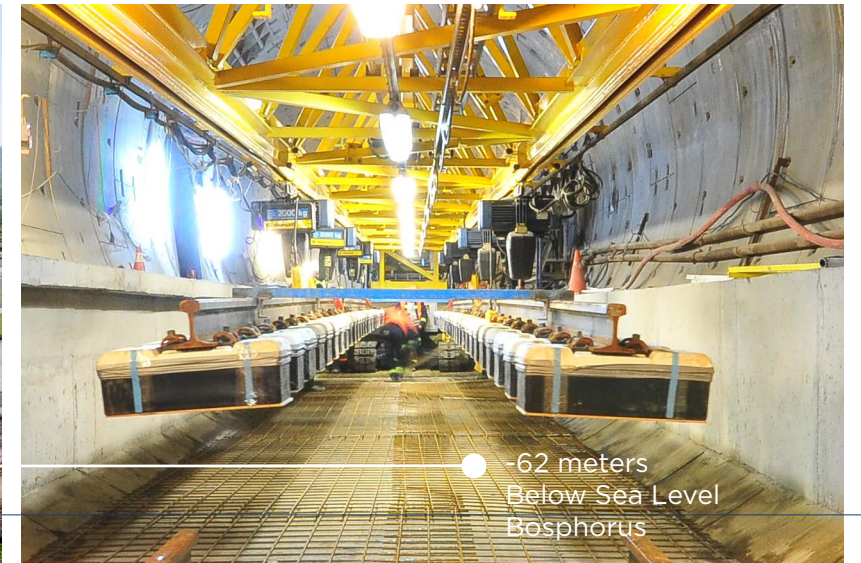
1.5 Mach (1850 km/h) max speed *(No, there is no typo mistake!)*

## Heavy or Speed

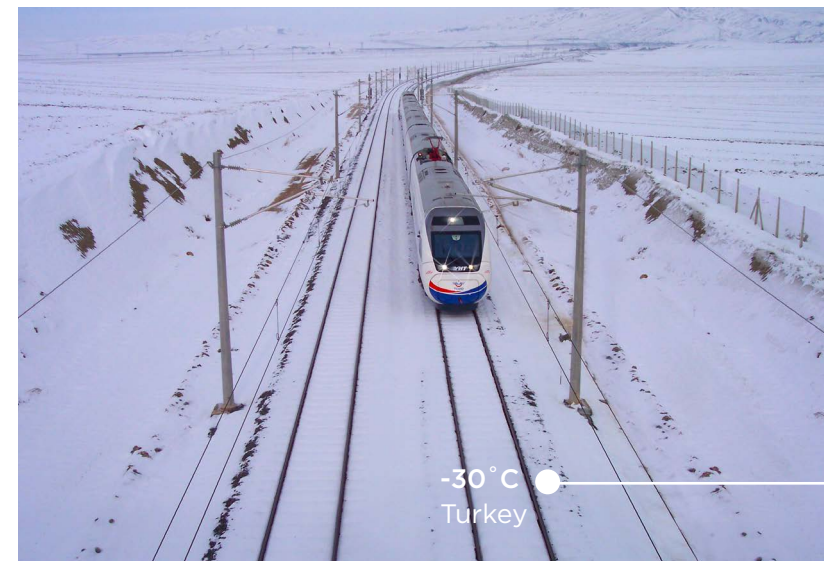
up to 35 tons of axle load or up to 300 km/h at high speed lines



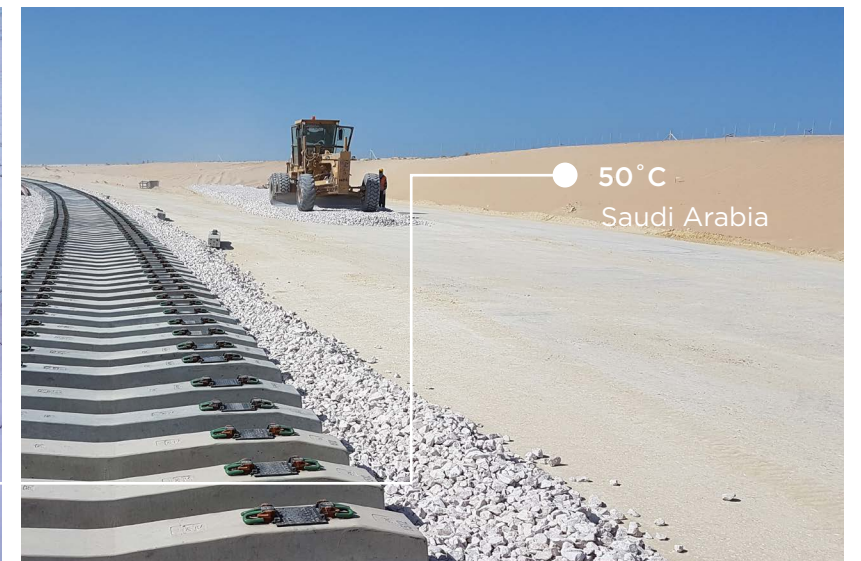
2800 meter Ethiopia Mountains



-62 meters  
Below Sea Level  
Bosphorus



-30 °C  
Turkey



50 °C  
Saudi Arabia



1,5 Mach

Longest  
Supersonic  
Test Track  
in Europe

Turkey

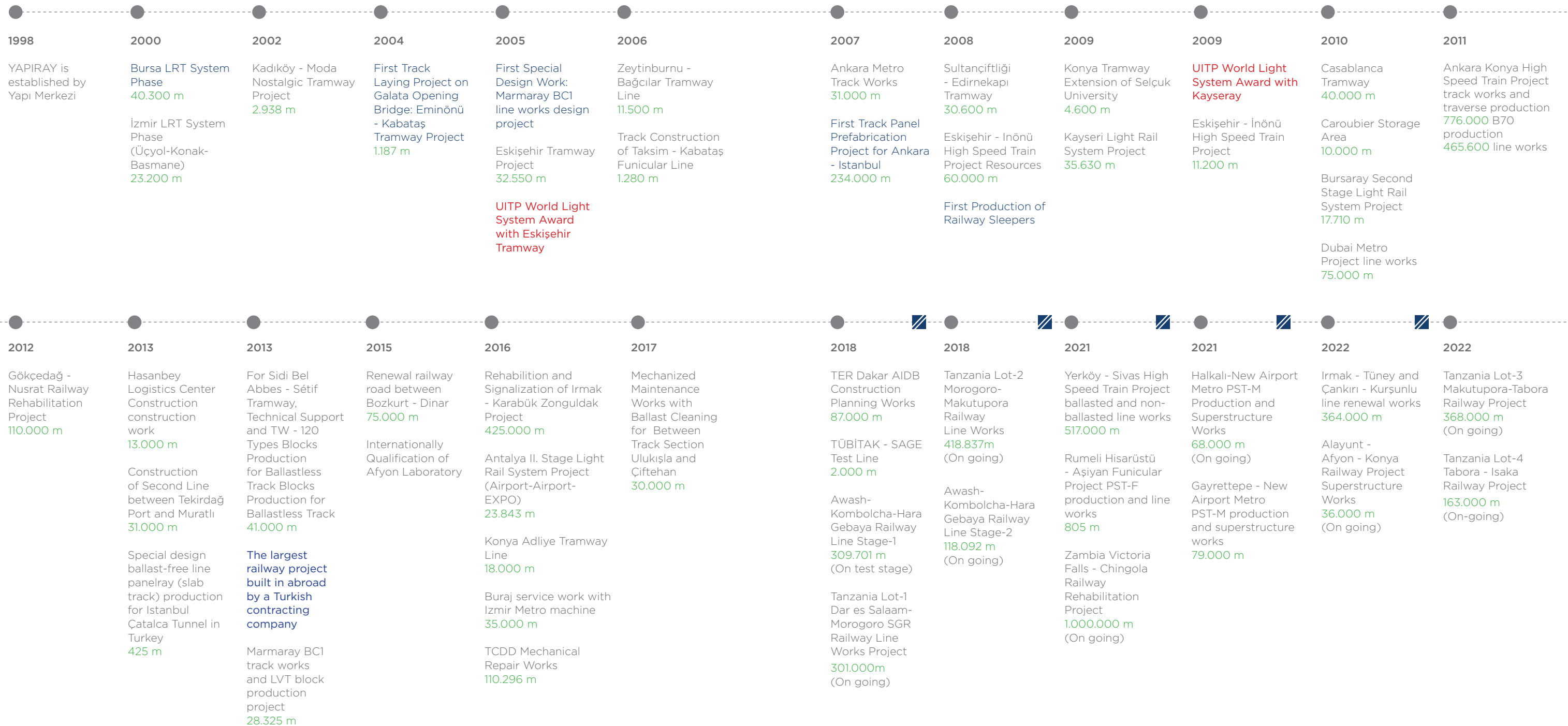


# NUMBERS KILOMETERS *Success*

Track Distance

Awards

On-going





# NUMBERS TELL *The Real Story*



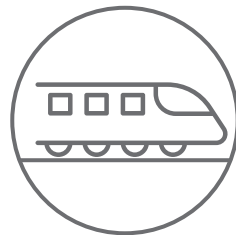
High Investment  
Budget for  
R&D



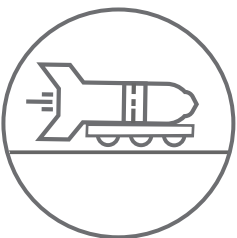
750  
Employees



Sleeper Production  
1.350.000 pcs/year  
Slab Track Production  
20.000 pcs/year



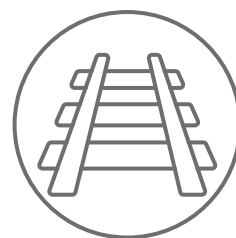
300 km/h in  
High Speed Lines



Supersonic Sled  
Test Track  
1,5 Mach (1850 km/h)



Know-How



Completed trackwork  
more than 4.2 million meters  
Ongoing trackwork more  
than 3.1 million meters



8 Countries  
3 Continents





INTERACTIVE  
EFFICIENT  
ACCURATE  
*Serving Humanity*  
SOME OF OUR PROJECTS





# Awash - Kombolcha - Hara Gebaya Railway Line ETHIOPIA



Project Start-End Dates/Phase1	01.2016 - On-test stage
Project Start-End Dates/Phase2	03.2018 - On-going
Line Length	Phase1 / 270 Km Phase2 / 158 km
Switch Type and Quantity	1/ 12 R:500, 38 Units 1/ 9 R:300, 63 Units
Sleeper Type	B 58 - 2,5
Sleeper Quantity	710.000





# *Dar es Salaam - Morogoro - Makutupora Railway Line*

## TANZANIA



Project Start - End Dates	05.2018 - On-going
Line Length	541 km Mainline, 181 km Siding
Switch Type and Quantity	1/24 R:1200, 49 Units 1/9 R:300, 188 Units
Sleeper Type	Heavy Haul, Turnout and Bridge
Sleeper Quantity	1.200.000





# Makutupora - Tabora - Isaka Railway Line TANZANIA



Project Start - End Dates	06.2022 - On going
Line Length	415 km Mainline, 116 km Siding
Switch Type and Quantity	1/24 R:1200, 44 Units 1/9 R:300, 112 Units
Sleeper Type	Heavy Haul, Turnout and Bridge
Sleeper Quantity	880.000





# Yerköy - Sivas High Speed Railway Line TURKEY

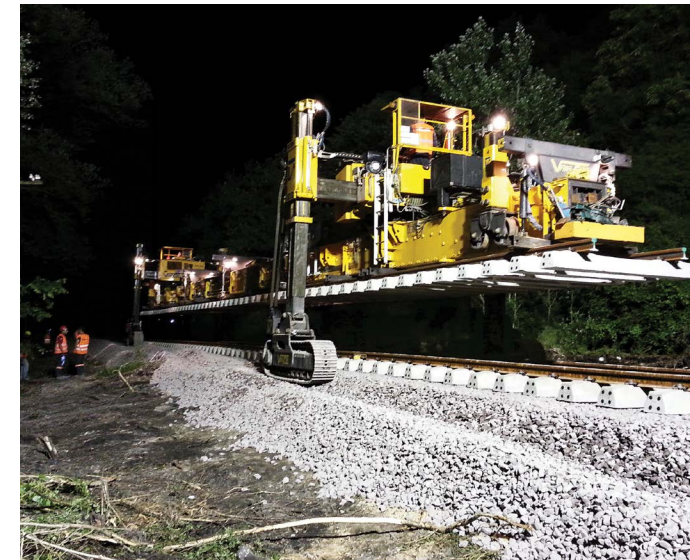
Project Start - End Dates	03.2018 -12.2021
Line Length	410 km ballasted track and 96 km ballastless track
Switch Type and Quantity	1/25.5 R2500 - 25 units 1/23.8 R1500 - 6 units 1/18.5 R1200 - 20 units 1/12 R500 - 20 units 1/9 R300 - 26 units
Sleeper Type	B07 and B320 Panelray PST
Sleeper Quantity	B07 - 685.000 pcs B320 - 2.400 pcs Panelray PST - 20.000 pcs





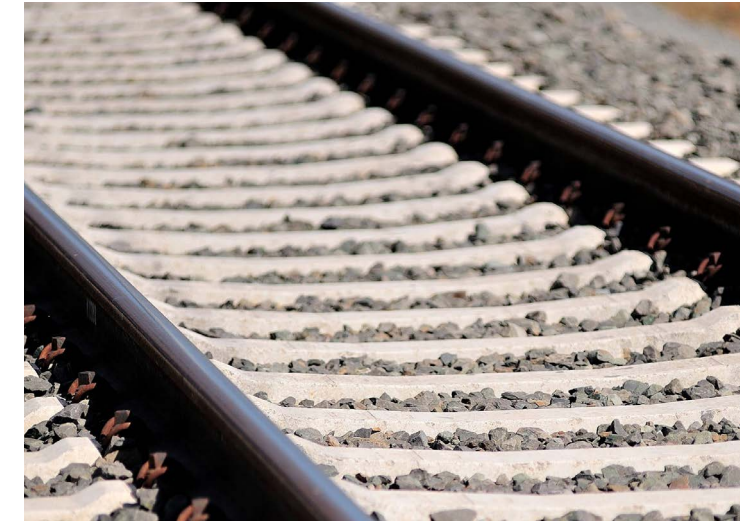
# Irmak - Karabük - Zonguldak Railway Rehabilitation Project TURKEY

Project Start - End Dates	12.2012 - 12.2016
Switch Type and Quantity	1/9 - R:300, 200 Units
Sleeper Type	B58-2.4
Line Length	415 km Mainline, 65 km Siding
Sleeper Quantity	24.500





# Ankara - Konya High Speed Railway Line TURKEY



Project Start - End Dates	11.2008 - 08.2011
Line Length	465 km
Switch Type and Quantity	1/9 R:300, 2 Units 1/12 R:500, 46 Units 1/29 R:300, 10 Units 1/46 R:3550, 28 Units
Sleeper Type	B70
Sleeper Quantity	766.000





# Marmaray BC1

## TURKEY

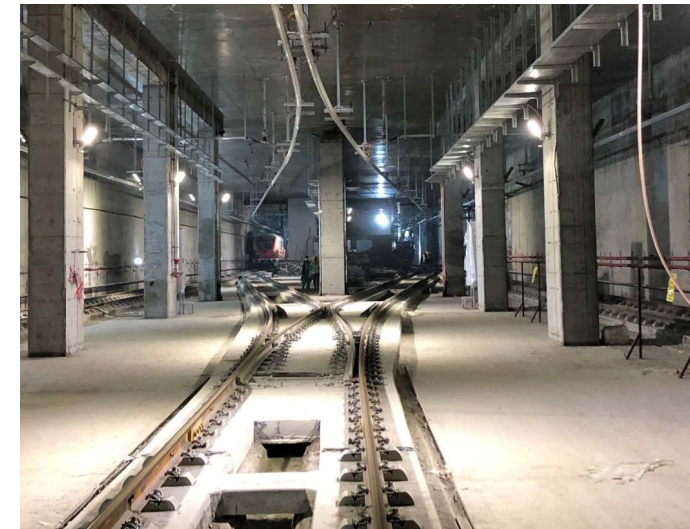
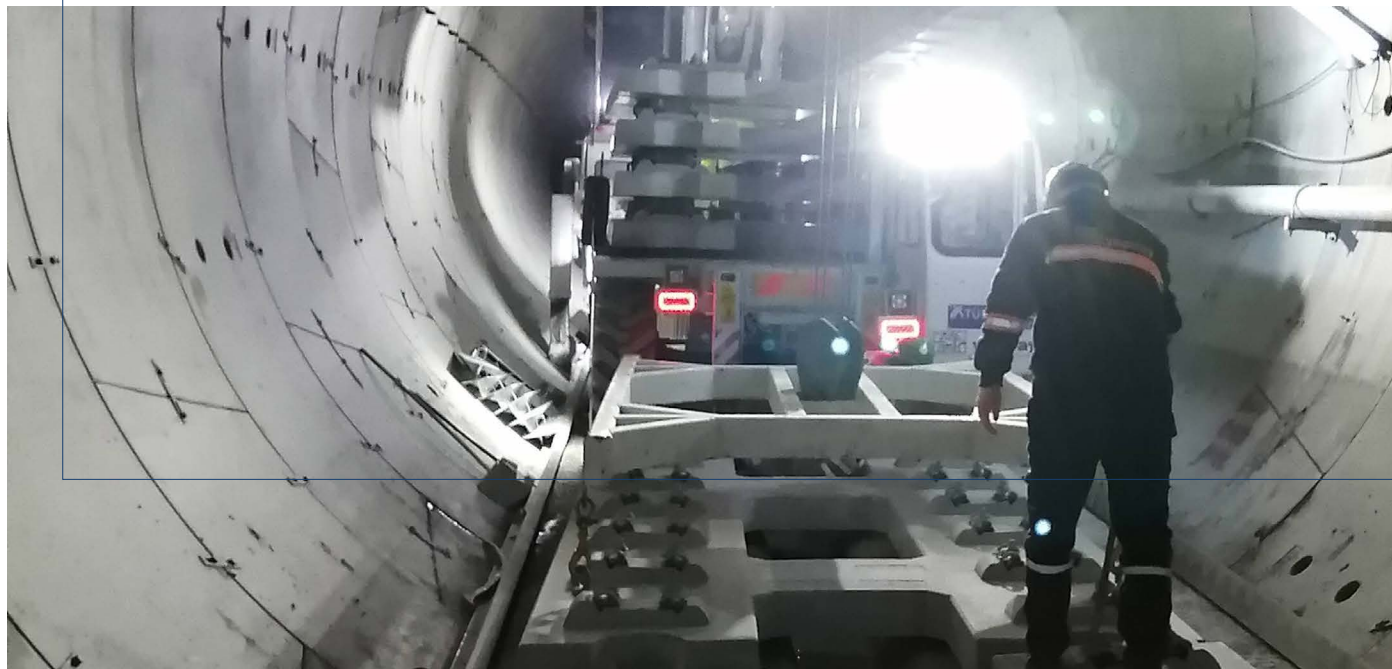
Project Start - End Dates	06.2011 - 10.2013
Line Length	3 km Ballasted and 26 km Direct Fixation
Switch Type and Quantity	1/7 R:140, 7 Units 1/9 R:300, 5 Units
Sleeper Type	B70 and LVT Block





# Gayrettepe - Istanbul Airport - Halkalı Metro Line TURKEY

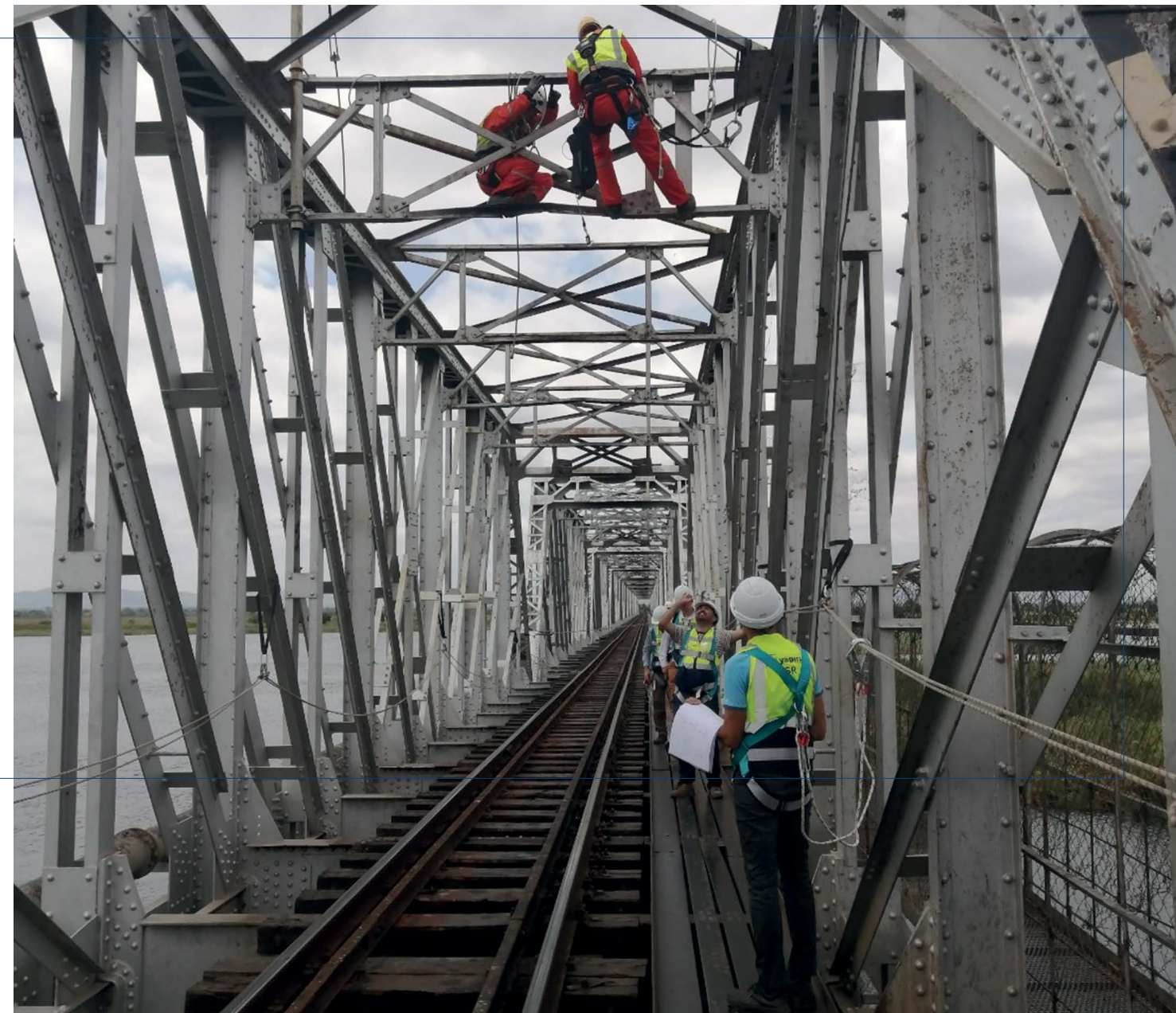
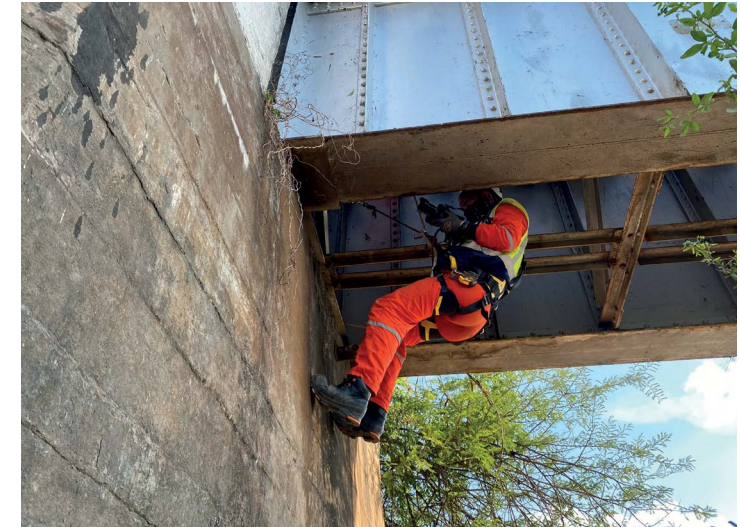
Project Start - End Dates	11.2019 - On going
Line Length	140 km
Sleeper Type/ Slab Track Type	Panelray PST-M (E65) Panelray PST-M (E70) Panelray PST-M (E75)
Slab Track Quantity	31.500
Walkway for Tunnel	Rayton AEWS (Adjustable elevated walkway system)





# Rehabilitation of Railway Line from Victoria Falls to Chingola ZAMBIA

Project Start - End Dates	04.2021 - On going
Line Length	1029 km
Switch Type and Quantity	1/12 R:500, 108 Units 1/9 R:300, 80 Units
Slab Track Quantity	P2 Mainline, Turnout
Sleeper Quantity	628.700





# Other Projects

Superstructure Construction Works on Alayunt-Afyon-Konya Railway Line Section

Rumeli Hisarüstü-Aşıyan Funicular Project

Ter Dakar M1 Railway Project

Irmak-Tüney ve Çankırı-Kurşunlu Railway Rehabilitation Project

TÜBİTAK-SAGE Test Campus

Mechanized Maintenance Works with Ballast Cleaning for

Between Track Section Ulukışla and Çiftahan

Antalya II.Stage Light Rail System Project (Meydan-Airport-EXPO)

Sétif Tramway

Sidi Bel Abbès Tramway

Konya Adliye Tramway

Bozkurt-Dinar Railway Line

Tekirdağ-Muratlı Line Works

Hasanbey Logistics Center Construction Construction Work

Gökçedağ-Nusrat Railway Rehabilitation Project

Casablanca Tramway

Ankara-Konya High Speed Railway Line

Eskişehir-İnönü High Speed Train Project

Bursaray Light Metro System

Konya Tramway (Extension of Selçuk University)

Kayseri Tramway

Sultançiftliği-Edirnekapı Tramway

Taksim-Kabataş Funicular

Eminönü-Sirkeci Tramway

Ankara Metro 3.Phase Line Works

ESTRAM-Eskişehir Tramway

Galata Bridge Tramway Laying Works

Zeytinburnu-Bağcılar Tramway

Kadıköy-Moda Nostalgic Tramway

İzmir Metro

Turkey, 2022 - On going

Turkey, 2021 - 2021

Senegal, 2018 - 2020

Turkey, 2017 - 2022

Turkey, 2017 - 2018

Turkey, 2017 - 2017

Turkey, 2016 - 2016

Algeria, 2014 - 2017

Algeria, 2014 - 2017

Turkey, 2013 - 2016

Turkey, 2013 - 2015

Turkey, 2011 - 2013

Turkey, 2011 - 2013

Turkey, 2011 - 2012

Morocco, 2009 - 2010

Turkey, 2008 - 2011

Turkey, 2008 - 2009

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Turkey, 2002 - 2003

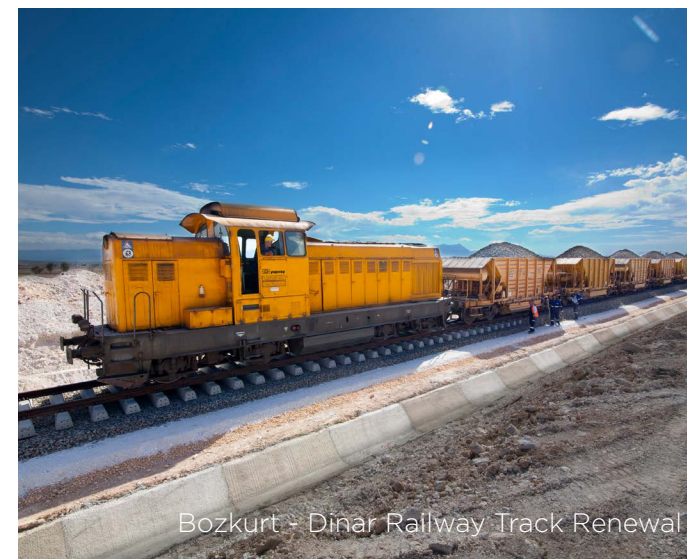
Turkey, 1998 - 2000



Beyoğlu Nostalgic Tramway



Konya Tramway



Bozkurt - Dinar Railway Track Renewal



Taksim - Kabataş Funicular System



Eskişehir Light Rail System (Estram)



Casablanca Tramway



# HI-TECH MACHINERY *Park and Equipments*

YAPIRAY has its own specified machinery park with a total value of approximately 50 million €. This machinery park is one of the most important advantages for key projects, like; new construction of high-speed & freight railway projects, maintenance and renewal of existing lines, various types of metro projects.

Machineries	Brands	Quantity
Turnout & Plain Line Tamping, Regulator, Stabilizer	Plasser & Theurer	13
Flash Butt Welding	Schlatter	6
Track Laying Machine	Vaiacar, Lanser, PEM, MSC	7
Locomotive	LDH/LDE	9
Shunting Machine	Terberg , Unimog	11
Rail Road Excavator	CAT, O&K, Liebherr, Atlas	22
Hopper Wagon		50
Platform Wagon		66
UCS Wagon		15
Passenger Car		2
Road Construction Machinery	Vogele, Hamm, Volvo	13
Road Group Machines Vogele	Hamm, Volvo	13

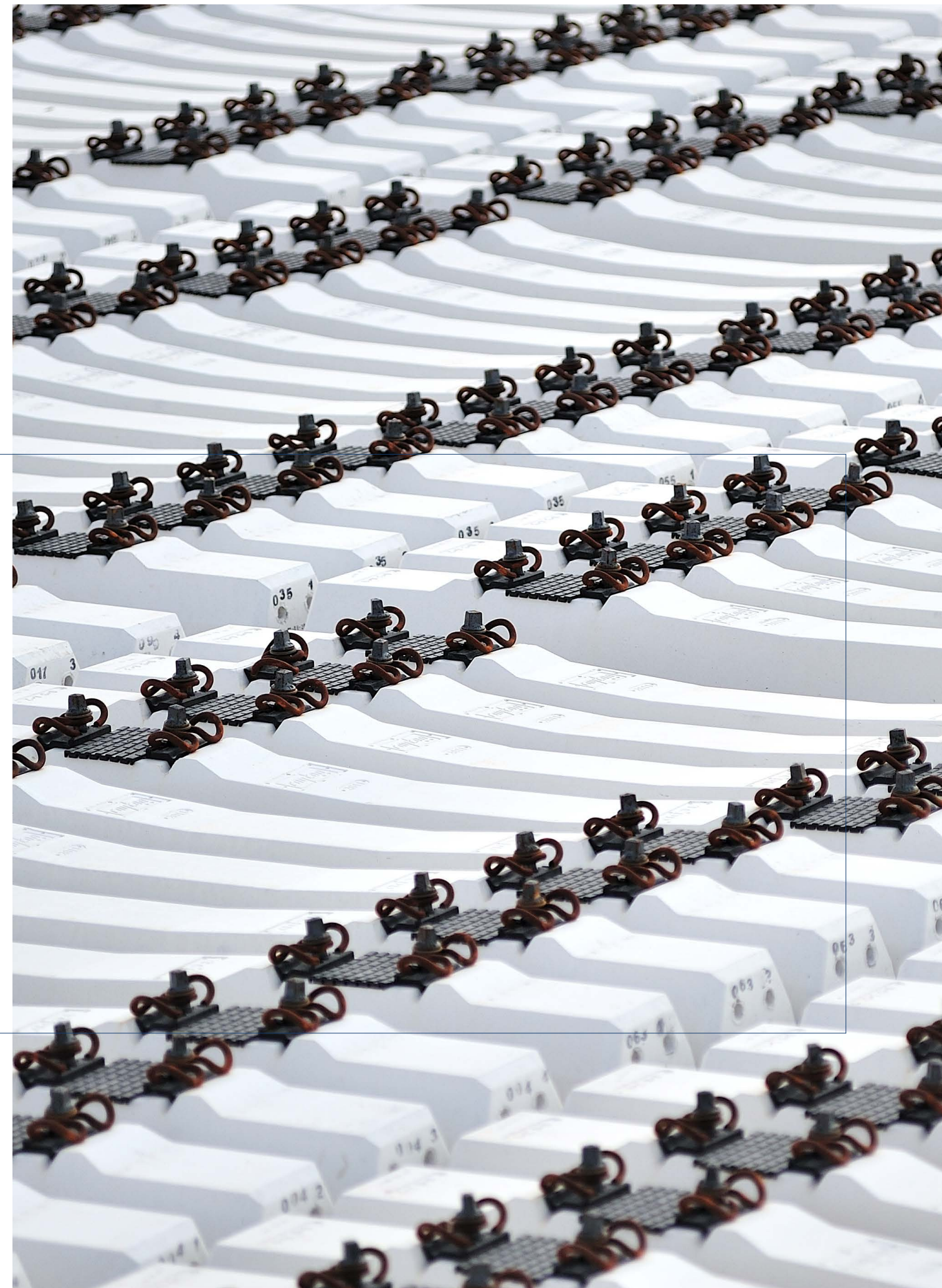




# SLEEPERS SLAB TRACKS *Products*



*panelray*





# B07 PRESTRESSED *Sleeper*

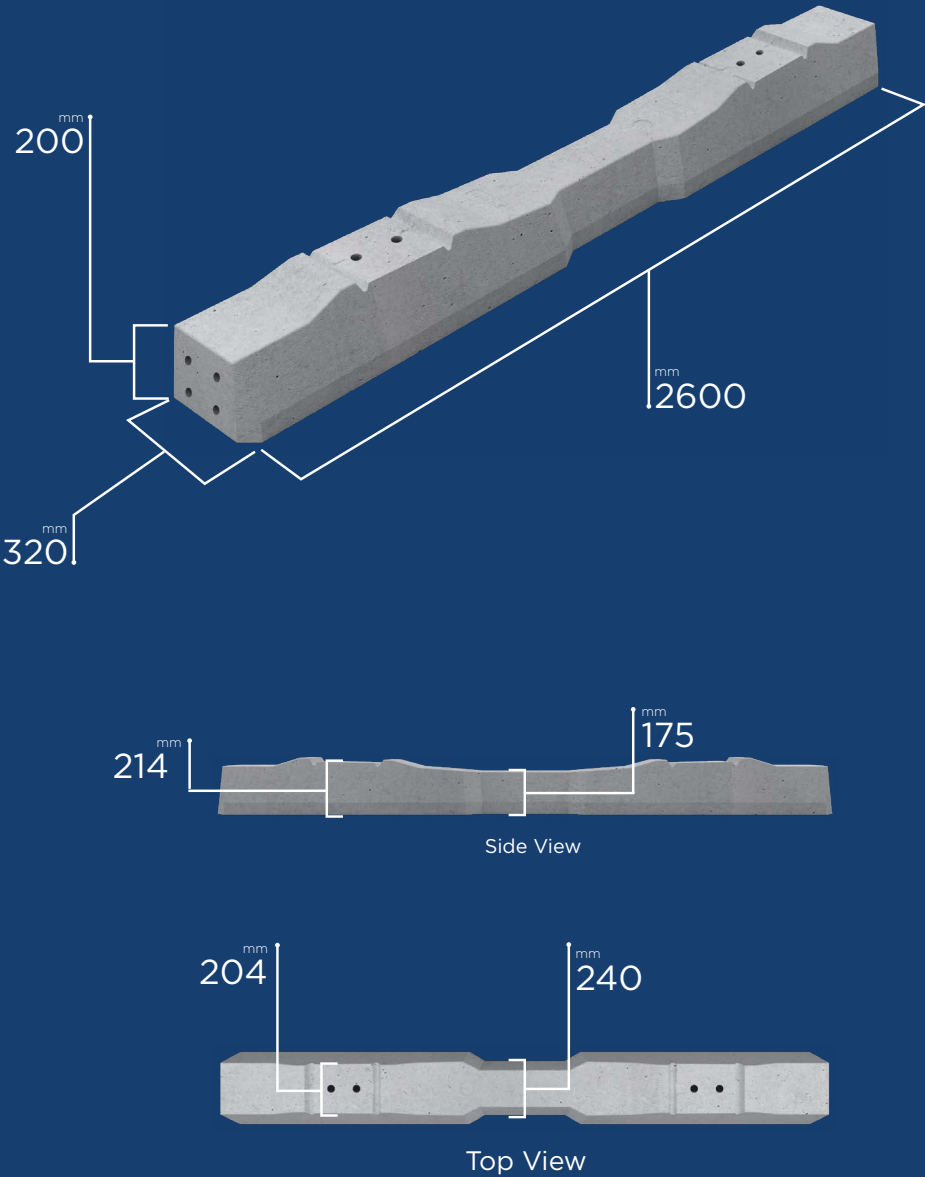


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 kN	Concrete Quality*	C50/60
Design Speed*	300 km/h	Volume	140 dm³
Rail Type*	60 E2, 60 E1 (UIC 60)	Weight (excluding rail fastenings)*	350 kg
Rail Fastening Type*	W21	Sleeper Shoulder	1814 mm
Real Seat Cant*	1:40	Total Area of Sleeper Bottom	7944 cm²
Gauge	1436 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## B07 PRESTRESSED CONCRETE SLEEPER



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# B70 PRESTRESSED *Sleeper*

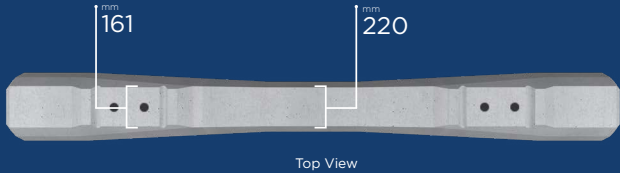
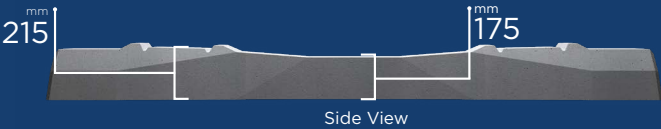
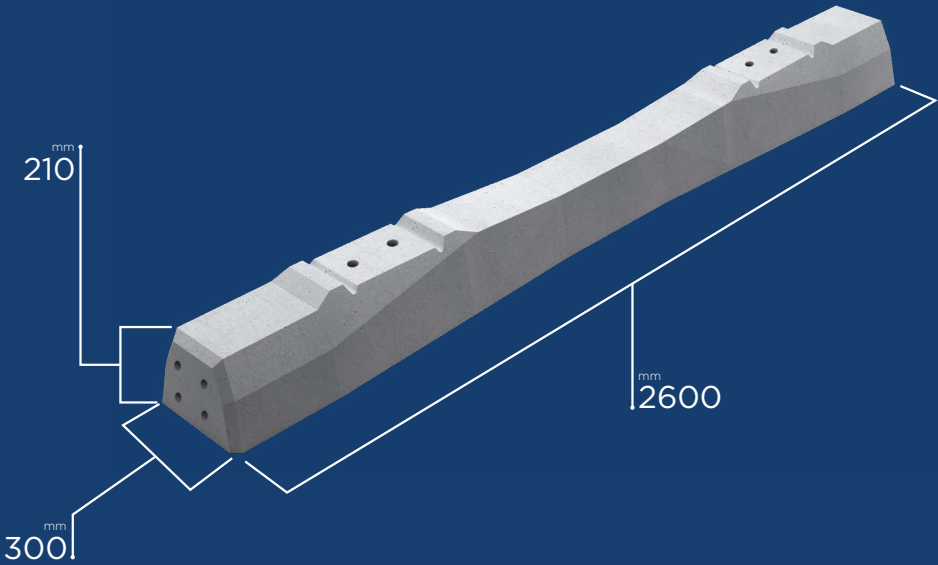


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 kN	Concrete Quality*	C65/80
Design Speed*	300 km/h	Volume	115 dm <sup>3</sup>
Rail Type*	60 E2, 60 E1	Weight (excluding rail fastenings)*	294,5 kg
Rail Fastening Type*	W14	Sleeper Shoulder	1813 mm
Rail Seat Cant*	1:40	Total Area of Sleeper Bottom	6832 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## B70 PRESTRESSED CONCRETE SLEEPER





# HH (HEAVY HAUL) PRESTRESSED *Sleeper*

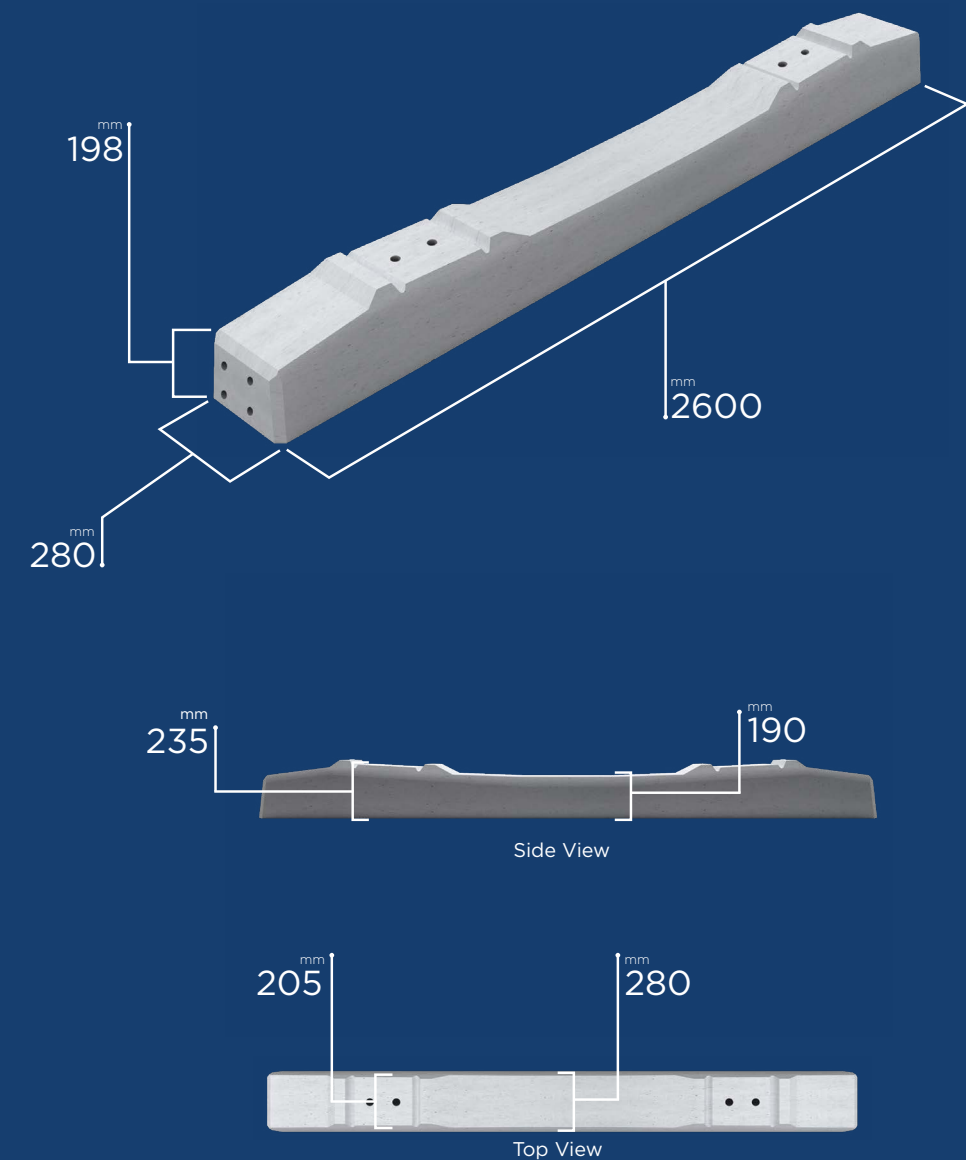


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	350 kN - 250 kN	Concrete Quality*	C50/60
Design Speed*	120 km/h - 160 km/h	Volume	143 dm <sup>3</sup>
Rail Type*	60 E1	Weight (excluding rail fastenings)*	353.2 kg
Rail Fastening Type*	W14 HH	Sleeper Shoulder	1823 mm
Real Seat Cant*	1:20	Total Area of Sleeper Bottom	7280 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## HH (Heavy Haul) PRESTRESSED CONCRETE SLEEPER





# B70 - DG PRESTRESSED *Sleeper*

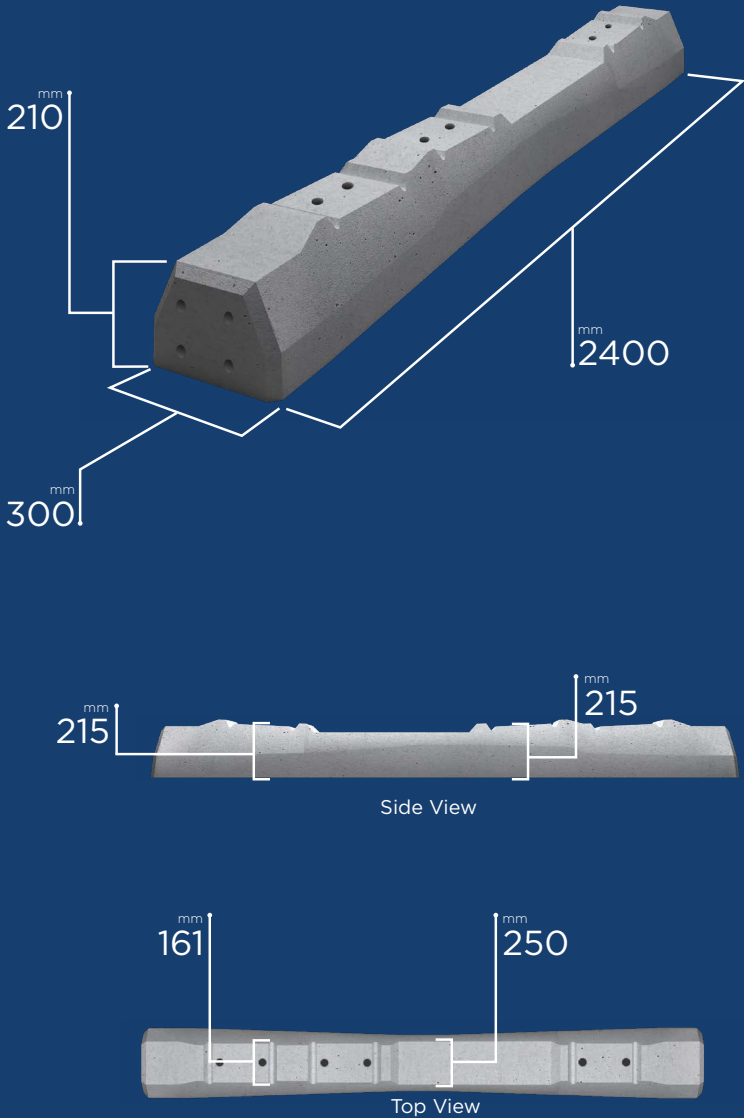


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	225 kN	Concrete Quality*	C50/60
Design Speed*	160 km/h - 120 km/h	Volume	118 dm <sup>3</sup>
Rail Type*	54 E1	Weight (excluding rail fastenings)*	285 kg
Rail Fastening Type*	W14	Sleeper Shoulder	1808.2 mm / 1373.2 mm
Real Seat Cant*	1:20	Total Area of Sleeper Bottom	6520 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm - 1000 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## B70 - DG PRESTRESSED CONCRETE SLEEPER



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# B70 2.4

## PRESTRESSED

### *Sleeper*

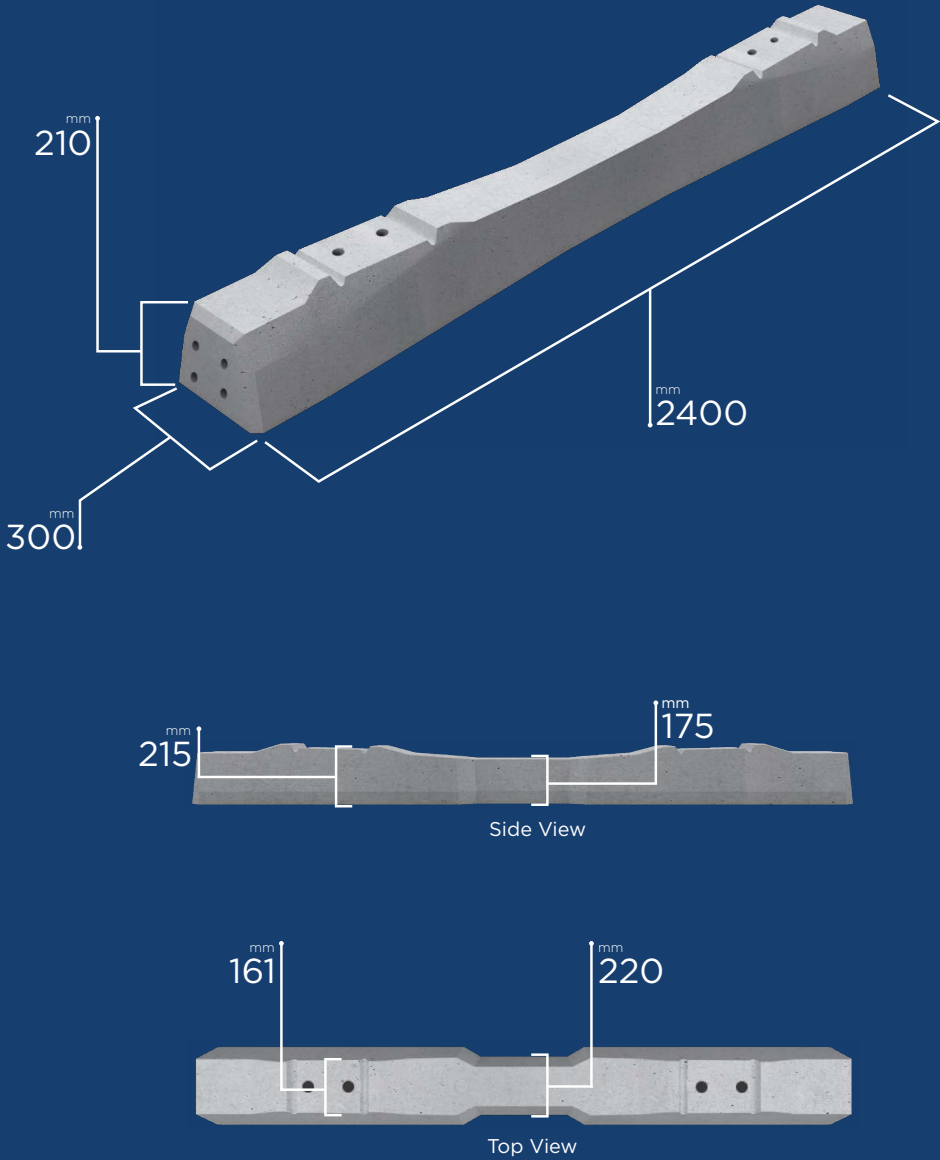


#### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 kN	Concrete Quality*	C50/60
Design Speed*	160 km/h	Volume	105 dm <sup>3</sup>
Rail Type*	60 E1	Weight (excluding rail fastenings)*	250 kg
Rail Fastening Type*	W14	Sleeper Shoulder	1813 mm
Real Seat Cant*	1:20	Total Area of Sleeper Bottom	6232 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

### B70 2.4 PRESTRESSED CONCRETE SLEEPER



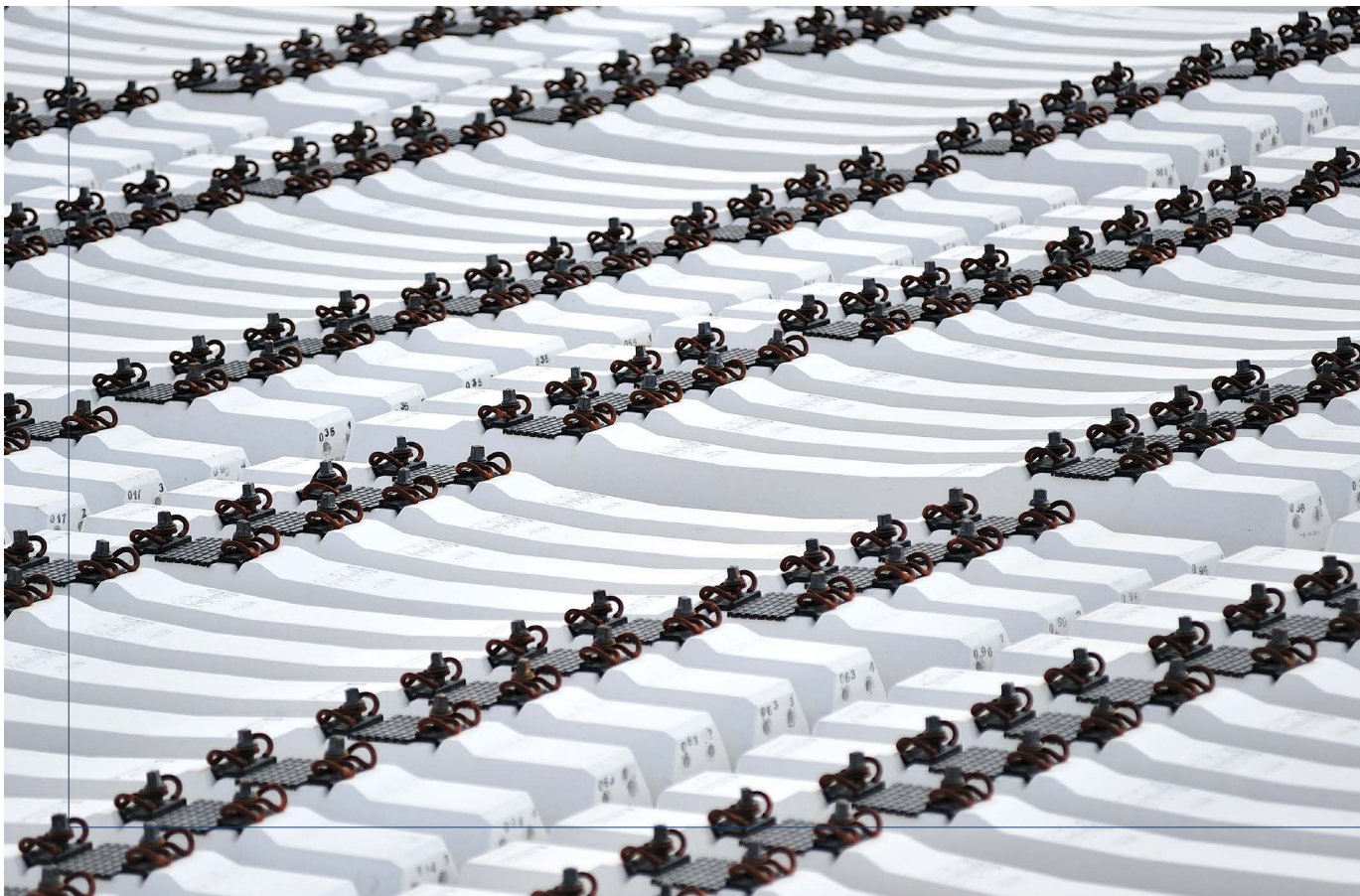
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# B58 2.4

## PRESTRESSED

### *Sleeper*

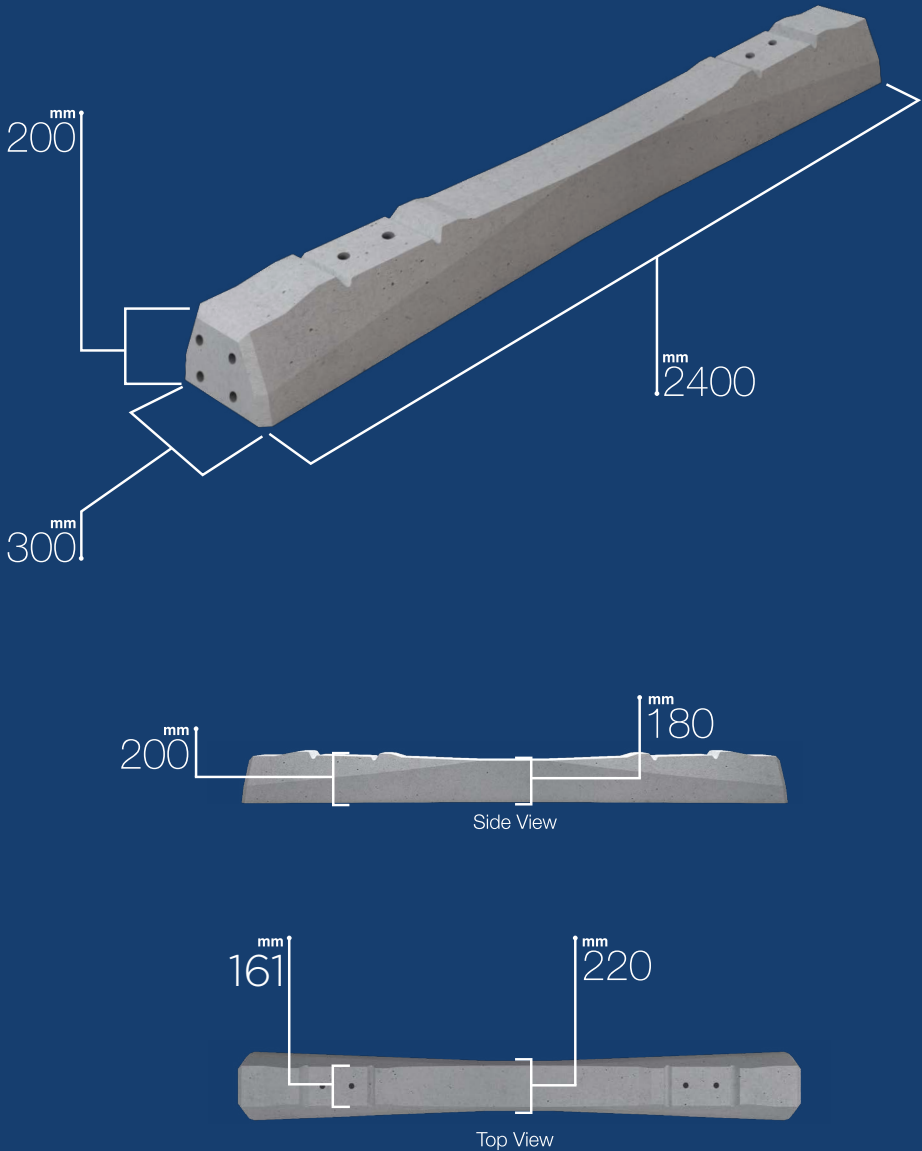


#### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 kN	Concrete Quality*	C50/60
Design Speed*	160 km/h	Volume	102.5 dm³
Rail Type*	49 E1	Weight (excluding rail fastenings)*	255 kg
Rail Fastening Type*	W14	Sleeper Shoulder	1783 mm
Real Seat Cant*	1:40	Total Area of Sleeper Bottom	6128 cm²
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## B58 2.4 PRESTRESSED CONCRETE SLEEPER



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# B58 2.5 PRESTRESSED *Sleeper*

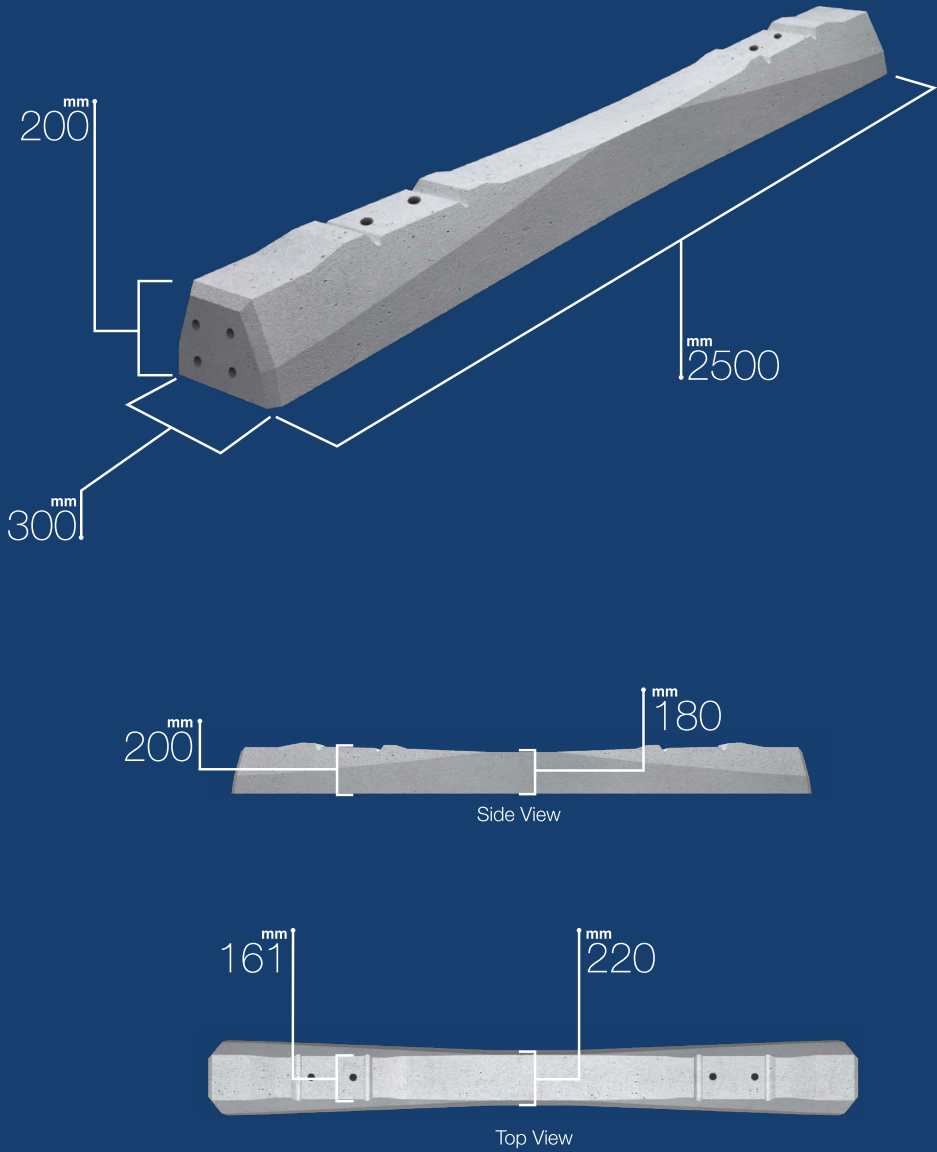


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 kN	Concrete Quality*	C50/60
Design Speed*	120 km/h	Volume	107 dm <sup>3</sup>
Rail Type*	54 E1 (UIC 54)	Weight (excluding rail fastenings)*	286 kg
Rail Fastening Type*	W14	Sleeper Shoulder	1800 mm
Real Seat Cant*	1:40	Total Area of Sleeper Bottom	6520 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## B58 2.5 PRESTRESSED CONCRETE SLEEPER



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# RAYTON P2 *Sleeper*

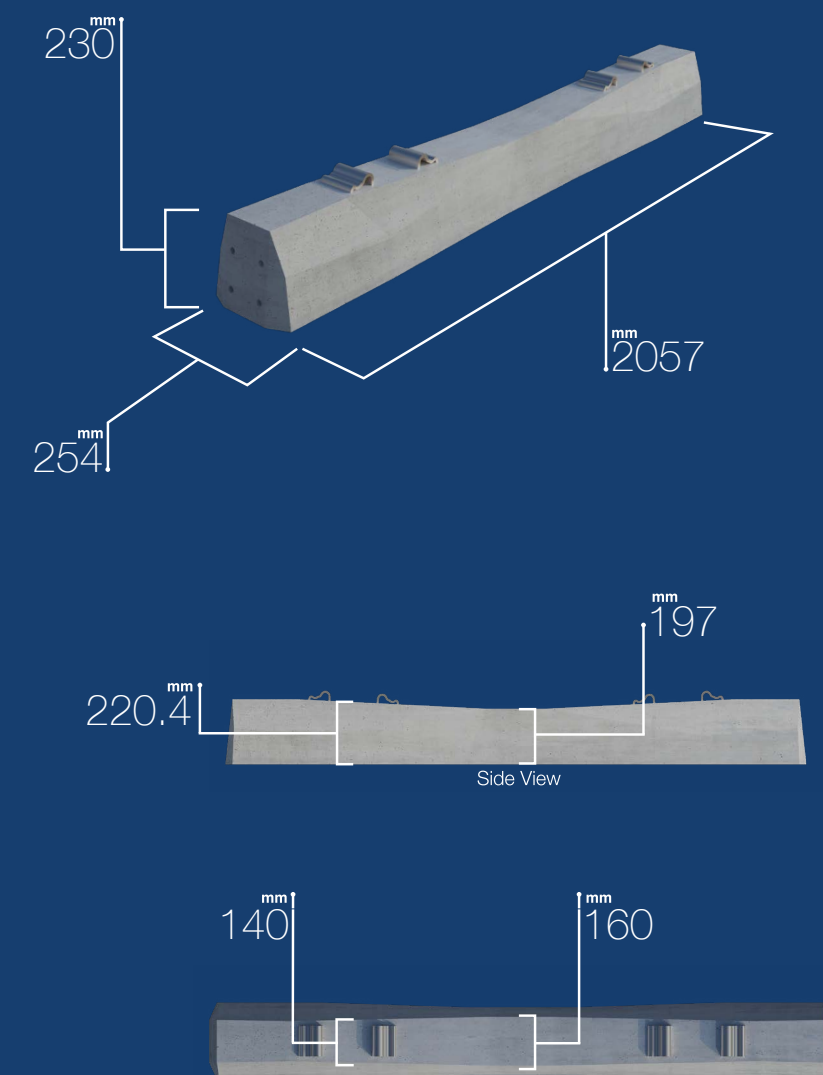


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	200 kN	Gauge	1067 mm
Design Speed*	80 km/h	Concrete Quality	C50/60
Rail Type*	SAR48	Volume	88 dm <sup>3</sup>
Rail fastening type	E-clip	Weight (excluding rail fastenings)	215 kg
Rail seat cant	1:20	Total area of sleeper bottom	4945 cm <sup>2</sup>

## P2 MAIN LINE SLEEPER



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# B320

## PRESTRESSED

### *Sleeper*

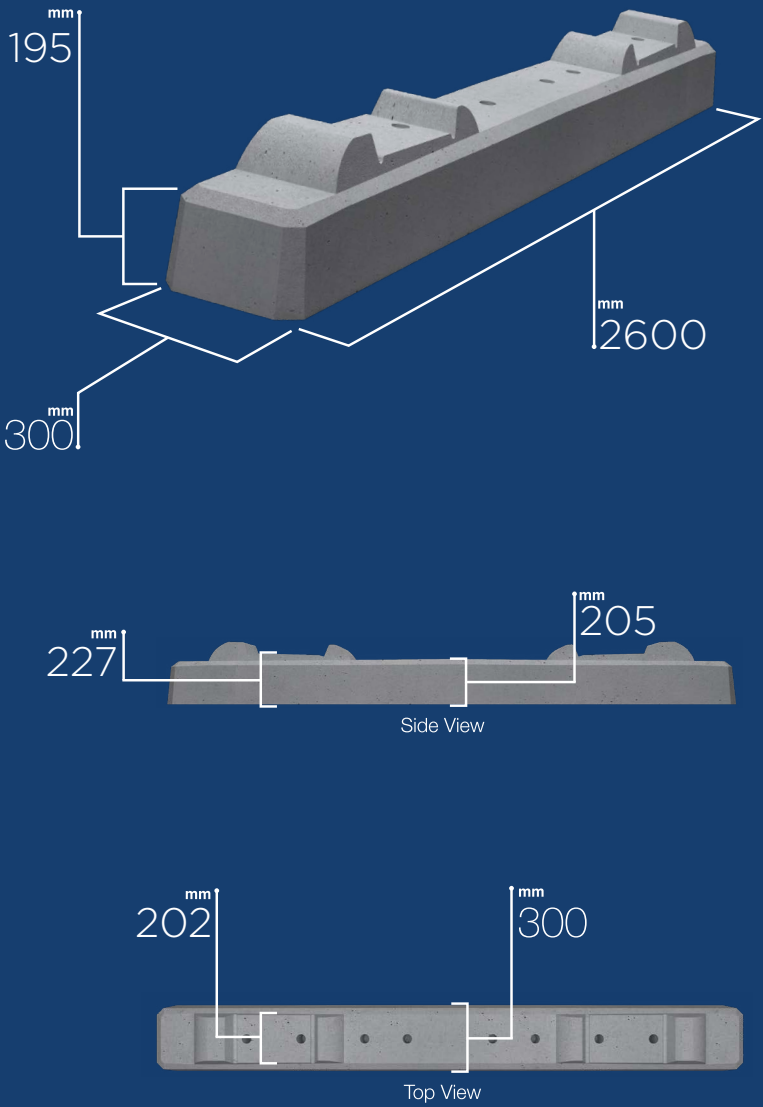


#### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 kN	Concrete Quality*	C65/80
Design Speed*	300 km/h	Volume	159 dm <sup>3</sup>
Rail Type*	60 E2	Weight (excluding rail fastenings)*	397.5 kg
Rail Fastening Type*	System 300 and System KS	Sleeper Shoulder	1892 mm
Real Seat Cant*	1:40	Total Area of Sleeper Bottom	7768 cm <sup>2</sup>
Gauge	1436 <sup>-1/+2</sup> mm	Intended Purpose	Transition Zone Sleeper

### B320 PRESTRESSED CONCRETE SLEEPER



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# M450 V PRESTRESSED *Sleeper*

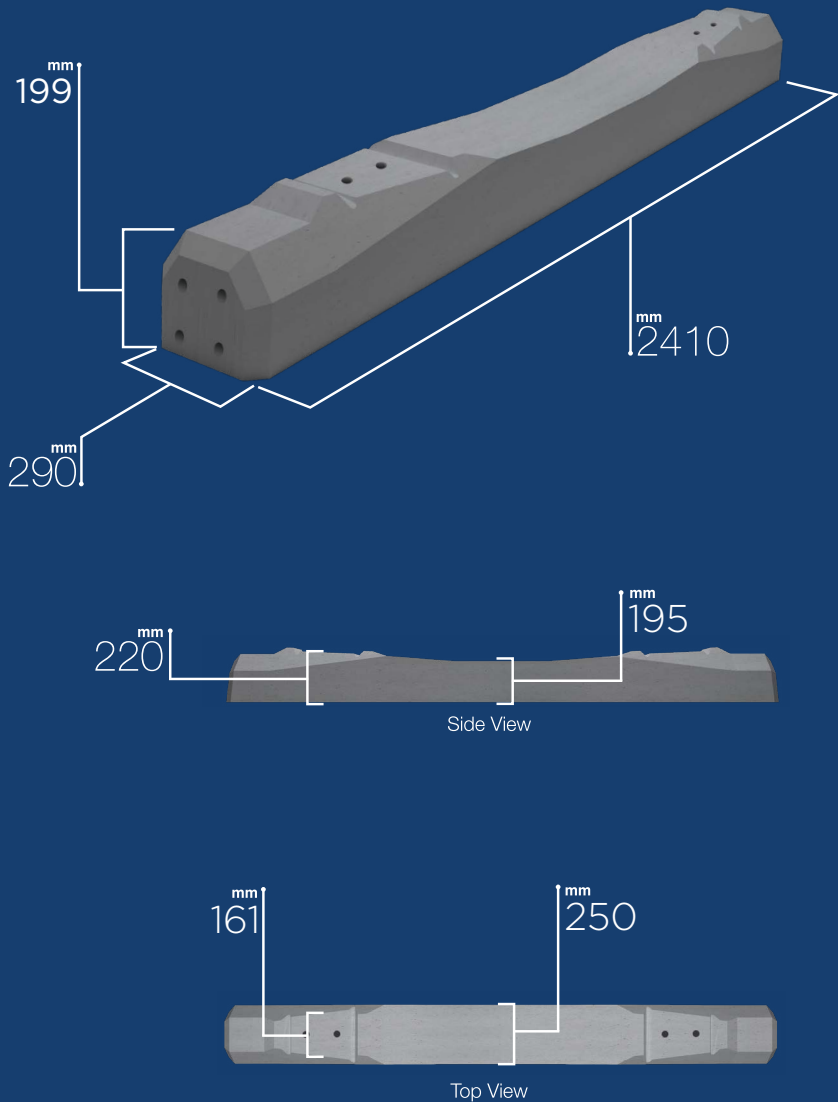


## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	225 kN	Concrete Quality*	C50/60
Design Speed*	160 km/h	Volume	111.8 dm <sup>3</sup>
Rail Type*	60 E1	Weight (excluding rail fastenings)*	285 kg
Rail Fastening Type*	W14	Sleeper Shoulder	1820 mm
Real Seat Cant*	1:20	Total Area of Sleeper Bottom	6586 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## M450 V PRESTRESSED CONCRETE SLEEPER



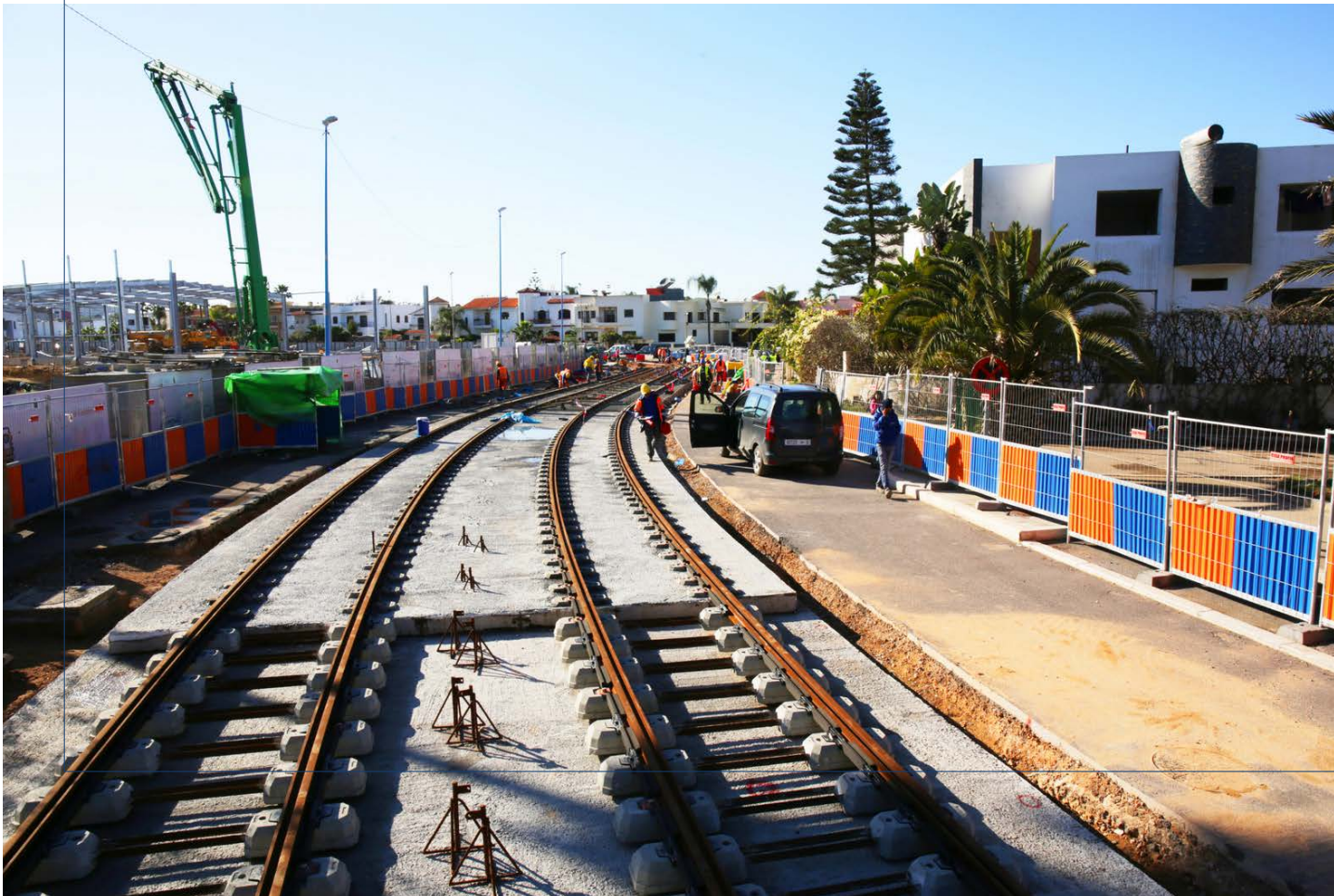
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# TB-12

## REINFORCED

# Sleeper

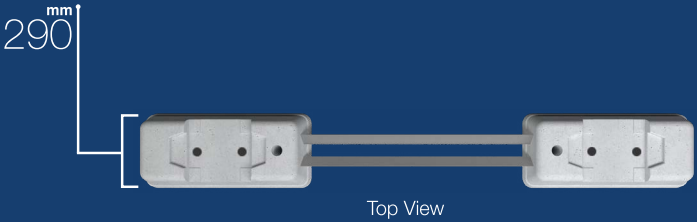
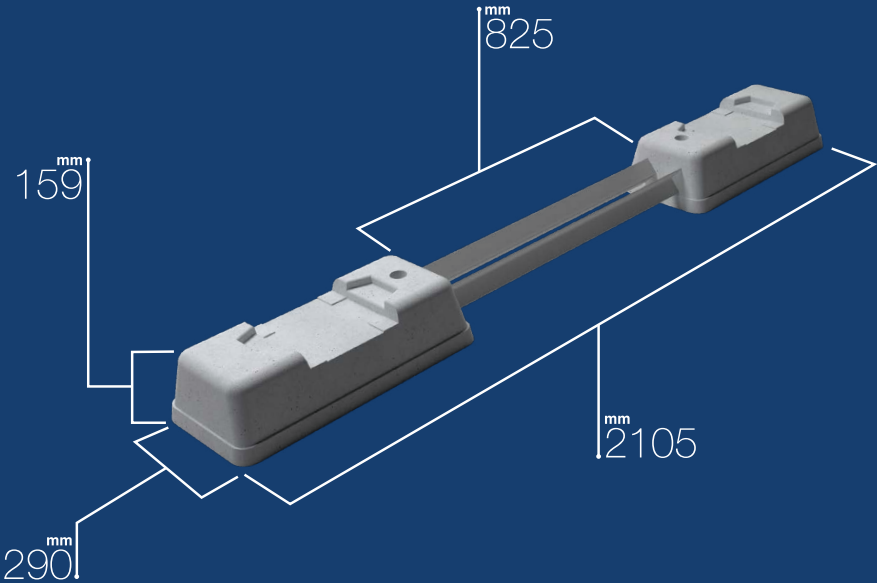


### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	165 kN	Concrete Quality*	C50/60
Design Speed*	80 km/h	Volume	57 dm <sup>3</sup>
Rail Type*	41 GPU	Weight (excluding rail fastenings)*	148 kg
Real Seat Cant*	-	Total Area of Sleeper Bottom	1829 cm <sup>2</sup>
Gauge	1435 <sup>-1/+2</sup> mm	Intended Purpose	Mainline Sleeper

## TB -12 REINFORCED CONCRETE SLEEPER



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# PRESTRESSED BRIDGE *Sleeper*



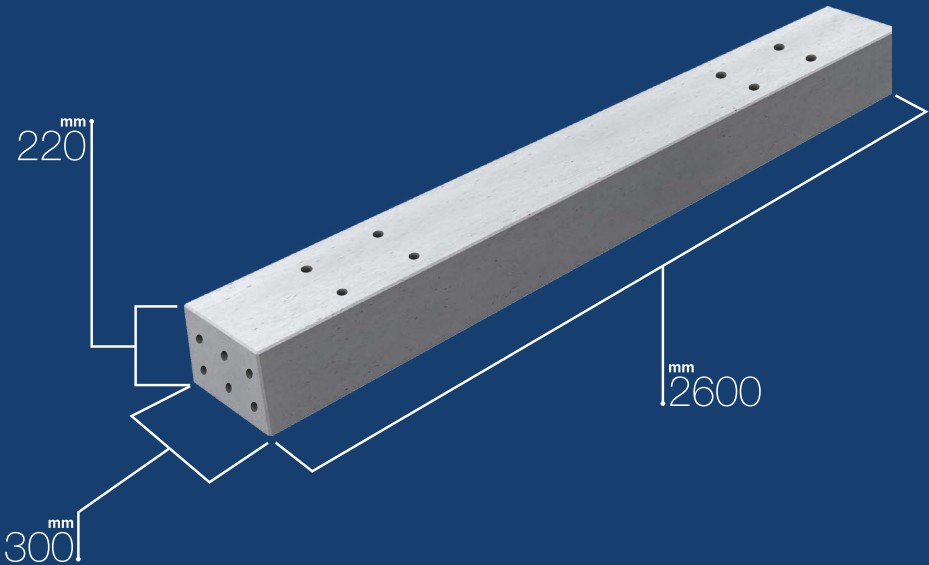
## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 - 350 kN	Concrete Quality*	C50/60
Design Speed*	300 - 160 km/h	Volume	165 dm <sup>3</sup>
Rail Type*	All Types	Weight (excluding rail fastenings)*	414.7 kg
Rail Fastening Type*	System KS 24	Total Area of Sleeper Bottom	7800 cm <sup>2</sup>
Real Seat Cant*	Various	Intended Purpose	Bridge Sleeper
Gauge	Various		

## Bridge Sleeper for Guard Rail

### PRESTRESSED CONCRETE SLEEPER



Side View



Top View

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# TURNOUT *Sleeper*



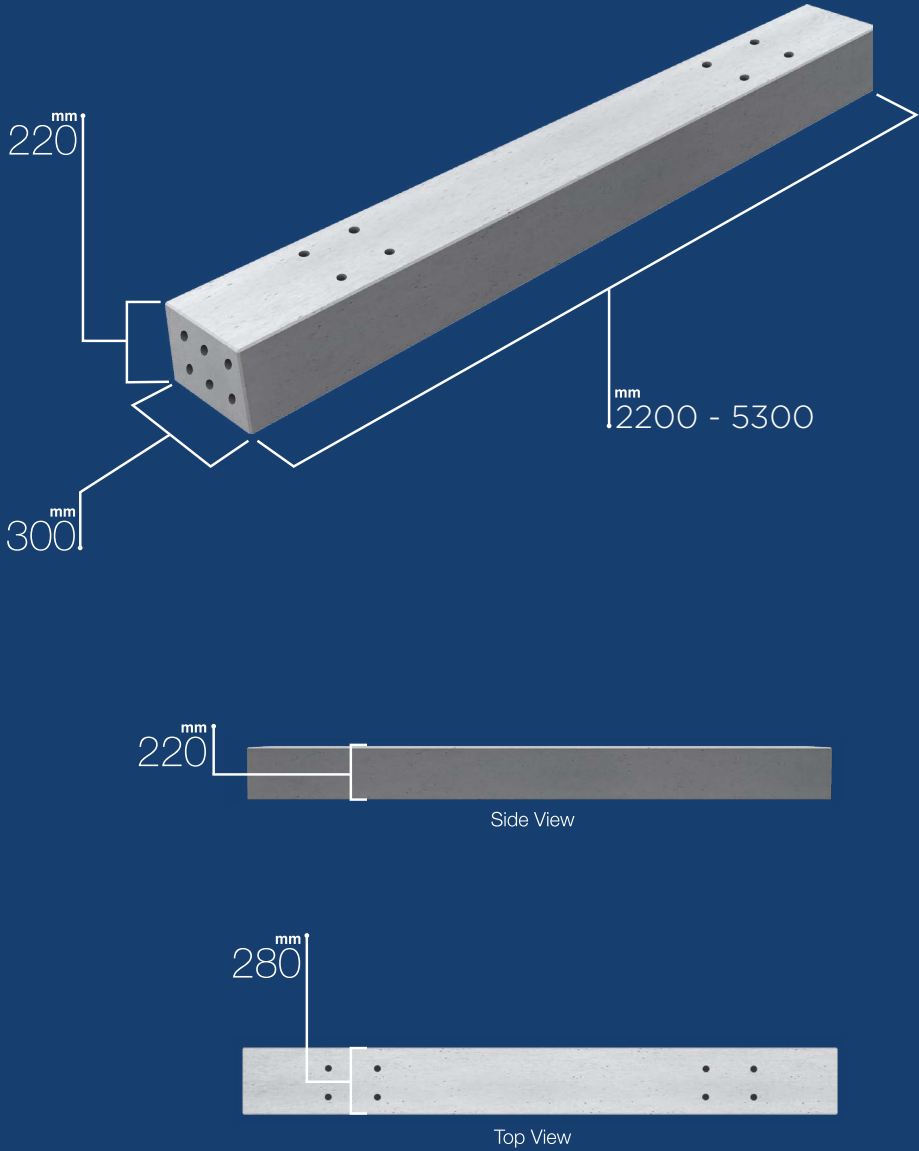
## TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	250 - 350 kN	Concrete Quality*	C65/80
Design Speed*	300 - 160 km/h	Volume	63.8 dm <sup>3</sup> /m
Rail Type*	All Types	Weight (excluding rail fastenings)*	160 kg/m
Rail Fastening Type*	W12 or W21T	Total Area of Sleeper Bottom	3000 cm <sup>2</sup> /m
Real Seat Cant*	-	Intended Purpose	Turnout Sleeper
Gauge	1435 <sup>-1/+2</sup> mm		

## Turnout Sleeper

PRESTRESSED CONCRETE SLEEPER



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# PANELRAY

## Prefabricated Slab Tracks (PST)



### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

Design Axle Load*	LM 71	Gauge	1436 <sup>-1/+2</sup> mm
Axle Load	250 kN	Concrete Quality*	C50/60
Design Speed*	300 km/h	Weight (excluding rail fastenings)*	6240 kg
Rail Type*	60 E2	Total Area of Bottom	118750 cm <sup>2</sup>
Rail Fastening Type*	System 300-1	Foundation Type*	Various
Real Seat Cant*	1:40		

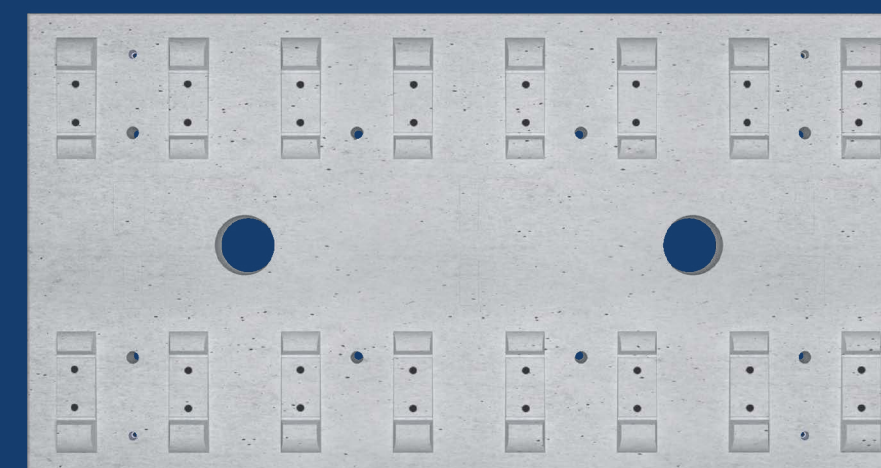
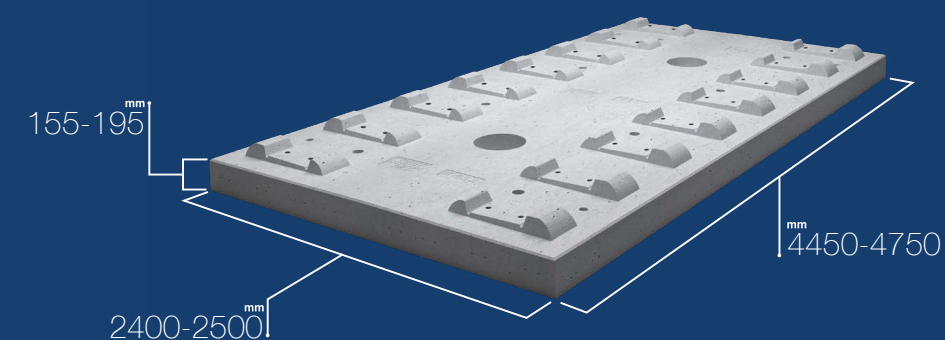
### Panelray Prefabricated Slab Tracks (PST)

Three different types of Panelray Prefabricated Slab Track solutions are available: PST-E60 and PST-E65

Panelray PST solutions are compatible for several fastening systems

Several reinforcement solutions are available:

- Post tensioned solution
- Steel reinforcement solution
- GFRP reinforcement solution
- Macro & Micro Synthetic Fiber reinforcement solutions



Top View

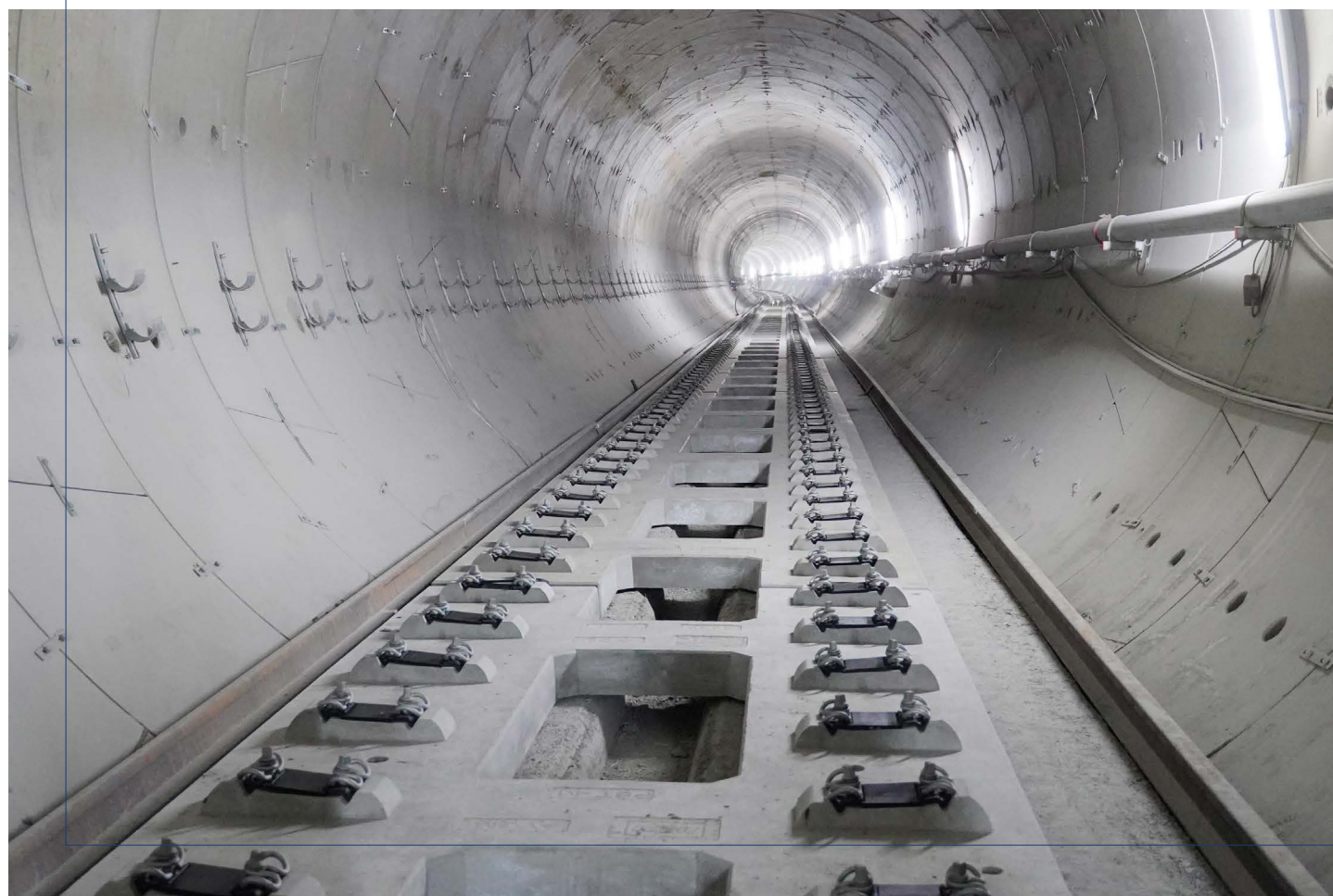
**panelray**

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# PANELRAY

## Prefabricated Slab Track for Metro Lines (PST-M)



### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

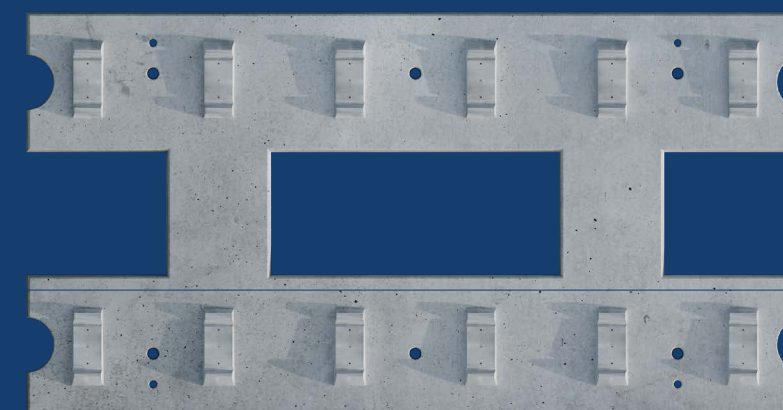
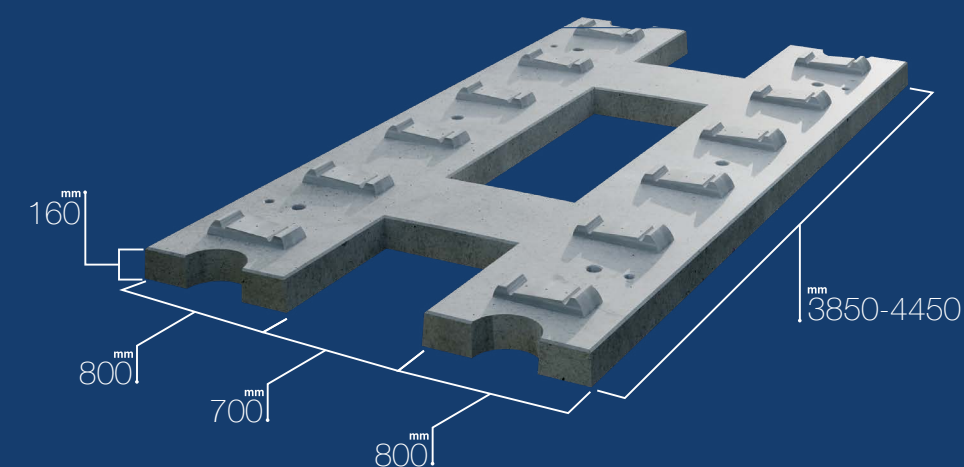
Design Axle Load*	Varies	Real Seat Cant*	1:20
Axle Load	160 kN	Gauge	1435 <sup>-1/+2</sup> mm
Design Speed*	120 km/h	Concrete Quality*	C50/60
Rail Type*	54 E1	Weight (excluding rail fastenings)*	3300 kg
Rail Fastening Type*	W21 UTS		

### Panelray PST-M

Three different PST-M solutions are available: E75, E70 and E65  
Panelray PST solutions are compatible for several fastening systems

Several reinforcement solutions are available:

- Post tensioned solution
- Steel reinforcement solution
- GFRP reinforcement solution
- Macro & Micro Synthetic Fiber reinforcement solutions



**panelray**

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# PANELRAY

## PST-JR



*panelray*

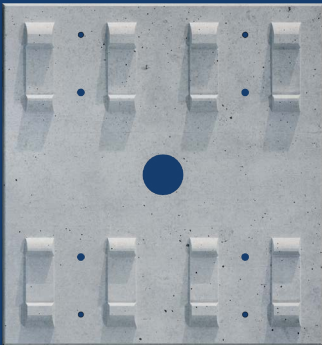
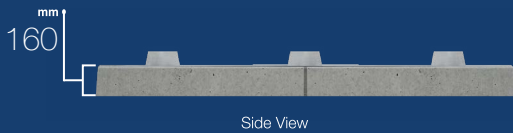
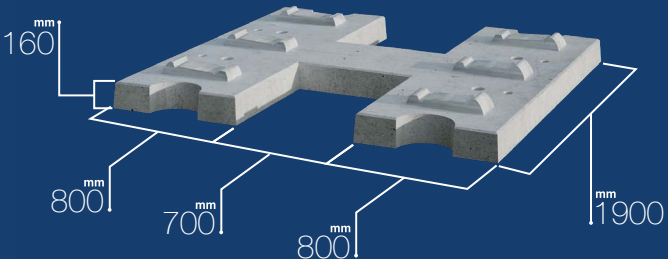
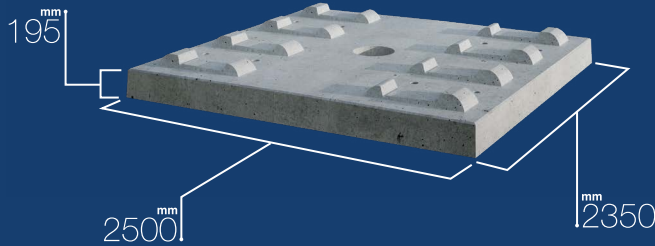
### TECHNICAL SPECIFICATIONS

\* Marked lines are the values given for standard products and can be modified to meet different requirements.

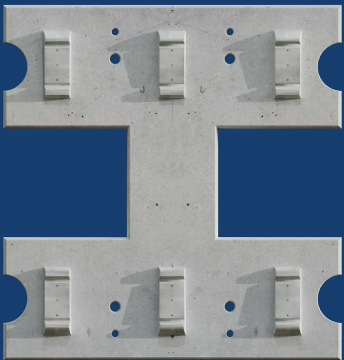
Design Axle Load*	Varies	Real Seat Cant*	Varies
Axle Load	up to 250 kN	Gauge	1435 <sup>-1/+2</sup> mm
Design Speed*	up to 250 km/h	Concrete Quality*	C50/60
Rail Type*	Varies	Weight (excluding rail fastenings)*	2000-3000 kg
Rail Fastening Type*	Varies		

### Panelray PST-JR

### Panelray PST-M JR



Top View



Top View

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# RAYTON

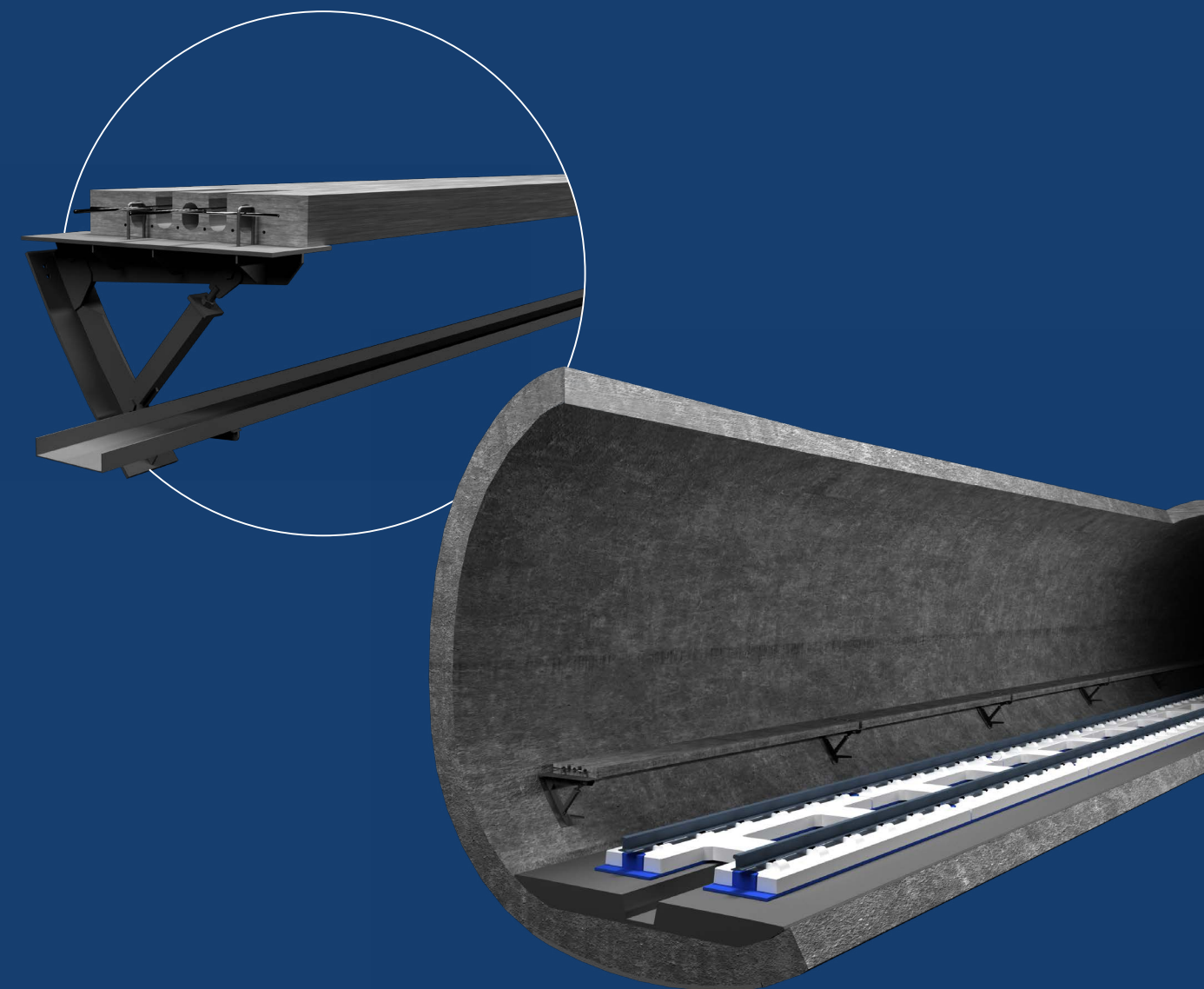
## *Adjustable Elevated Walkway system*



ADJUSTABLE ELEVATED

## WALKWAY SYSTEM (AEWS) FOR METRO TUNNELS

- Prefabrication and Pretensioning Technology
- Adjustable Steel Supports



Durable

|

Safer

|

Lighter

|

Practical





# PRODUCTS

## References



## PREFABRICATED SLAB TRACKS

	Production Name	Rail Type	Sleeper Type	Quantity	Project / Employee
1	Panelray Prefabricated Slab Track	54E1	Slab Track	17.500	Gayrettepe-Istanbul New Airport Metro Line / KKC Marmaray Construction
2	Panelray Prefabricated Slab Track	60E1	Slab Track	1.210	Panelray® FCA Production for Tunnel Rehabilitation in Bulgaria Koprivishitsa-Stryma / Bulgaria
3	Panelray Prefabricated Slab Track	54E1	Slab Track	15.340	Halkalı-Istanbul New Airport Metro Line / KKC Marmaray Construction
4	Panelray Prefabricated Slab Track	54E1	Slab Track	303	Rumeli Hisarüstü-Aşıyan Funicular Line / Metrostav Ankara Construction
5	Panelray Prefabricated Slab Track	60E2	Slab Track	8.740	Kayaş-Yerköy High Speed Train Line / TCDD
6	Panelray Prefabricated Slab Track	60E2	Slab Track	21.000	Yerköy - Sivas High Speed Line / TCDD
7	Panelray Prefabricated Slab Track	60E2	Slab Track	21.452	Bandırma-Osmaneli High Standard Railway Line / Kalyon Construction (On-going)

## MAINLINE SLEEPERS

	Production Name	Rail Type	Sleeper Type	Quantity	Project / Employee
1	HH (Heavy Haul) Monoblock Concrete Sleeper	60E1	Monoblock	668.600	Tanzania Morogoro-Makutupora Railway Line / Tanzania
2	HH (Heavy Haul) Monoblock Concrete Sleeper	60E1	Monoblock	459.290	Tanzania Dar Es Salaam-Morogoro Railway Line / Tanzania
3	B70 Monoblock Concrete Sleeper	60E1	Monoblok	50.000	Balıkesir-Susurluk Project / TCDD
4	TW120	41GPU	Bi Block	44.640	Sidi Bel Abbès Tramway Line / Algeria
5	B70 Monoblock Concrete Sleeper	60E1	Monoblock	60.000	Alayunt-Konya Railway Project / TCDD
6	HH (Heavy Haul) Monoblock Concrete Sleeper	60E1	Monoblock	567.000	Tanzania Makutupora-Tabora Railway Line / Tanzania (On-going)
7	B58 Monoblock Concrete Sleeper	54E1	Monoblock	441.000	Awash - Weldia Railway Project Trackworks Construction
8	B70 Monoblock Concrete Sleeper	60E1	Monoblock	40.000	ALSTOM Transport / Papua New Gine Mine Line
9	B58 Monoblock Concrete Sleeper	49E1	Monoblock	31.000	Antalya Tramway / Algeria
10	TW120	41GPU	Bi Block	46.989	Setif Tramway / Algeria
11	TW120	41GPU	Bi Block	40.434	Sidi Bel Abbès Tramway Line / Algeria
12	YMPFB Block	60Ri	Block	85.750	ESTRAM - Eskişehir Tramway Line
13	B58 Monoblock Concrete Sleeper	49E1	Monoblock	199.576	Track Renewal Work on Irmak - Tuney- Kurşunlu / TCDD
14	B07 Monoblock Concrete Sleeper	60E2	Monoblock	650.000	Yerköy - Sivas High Speed Line / TCDD
15	B07 Monoblock Concrete Sleeper	60E2	Monoblock	430.000	Kayaş-Yerköy High Speed Train Line / TCDD
16	B70 Monoblock Concrete Sleeper	60E2	Monoblock	30.000	Kayaş-Yerköy High Speed Train Line / TCDD
17	Bridge Sleeper	54E1	Bridge	17.500	Awash - Weldia Railway Project Trackworks Construction
18	HH (Heavy Haul) Bridge Sleeper	60E1	Bridge	19.500	Tanzania Dar Es Salaam-Morogoro-Makutupora Railway Line / Tanzania
19	B07 Monoblock Concrete Sleeper	60E2	Monoblock	564.384	Bandırma-Osmaneli High Standard Railway Line / Kalyon Construction (On-going)
20	B70 Monoblock Concrete Sleeper	60E2	Monoblock	860.000	Mersin-Gaziantep High Standard Railway Line / Ronesans Construction (On-going)

## TURNOUT SLEEPERS

	Production Name	Rail Type	Sleeper Type	Quantity	Project / Employee
1	Turnout Sleeper	60E1	1/9 R:300	17.580 m	TER Dakar AIDB / Senegal
2	Turnout Sleeper	60E1	1/9 R:300	83.320 m	Tanzania Dar Es Salaam-Morogoro Railway Line / Tanzania
3	Turnout Sleeper	60E1	1/9 R:300	61.515 m	Tanzania Morogoro-Makutupora Railway Line / Tanzania
4	Turnout Sleeper	60E1	1/9 R:300	40.141 m	Etihad Railway Line Project (On-going))
5	Turnout Sleeper	60E1	1/9 R:300	21.000 m	Krizhevci-Koprivnica-Hungary Border Railway Line / MZA Construction
6	Turnout Sleeper	60E2	1/9 R:300	68.195 m	Bandırma-Osmaneli High Standard Railway Line / Kalyon Construction
7	Turnout Sleeper	60E1	1/9 R:300	42.060 m	TCDD (Production Between 2020-2022)
8	Turnout Sleeper	60E2	1/9 R:300	18.850 m	Alayunt-Konya Railway Project / TCDD
9	Turnout Sleeper	49E1	1/9 R:300	24.200 m	Rehabilitation and Signalization of IKZ Project / TCDD
10	Turnout Sleeper	54E1	1/9 R:300	24.442 m	Awash - Weldia Railway Project Trackworks Construction
11	Turnout Sleeper	60E1	1/9 R:300	17.182 m	VAE Turnout / Turkey Plant
12	Turnout Sleeper	60E1	1/9 R:300	2.420 m	Renewal of Bozkurt - Dinar / TCDD
13	Turnout Sleeper	60E1	1/9 R:300	726 m	Rehabilitation and Signalization of IKZ Project / TCDD



# RESEARCH AND DEVELOPMENT *Laboratory*

In parallel with technologies developing currently, as in many sectors, construction and superstructure sector have experienced important changes. Our objective is the follow innovation and technology and achieve required standard and quality.

Our laboratories have been established in accordance with TS EN ISO/IEC 17025 and aim to operate with the quality management system and ensuring testing services with internationally approved methods. It is aimed to get qualified, fast, reliable testing results for maximum customer satisfaction.

TESTED MATERIAL	NAME OF THE TEST	TESTING MODULE
AGGREGATE	Measurement of Particle Size Distribution via Screening Method	EN 933 - 1
AGGREGATE	Measurement of Loose Bulk Intensity and Clearance Volume	EN 1097 - 3
AGGREGATE	Measurement of Water Content via Drying in a Ventilated Oven	EN 1097 - 5
AGGREGATE	Measurement of Particle Density and Water Absorption Rate	EN 1097 - 6
AGGREGATE	Measurement of Thin Particles Methylene Blue Test	EN 933 - 9
FRESH CONCRETE	Slump Test	EN 12350 - 2
FRESH CONCRETE	Intensity Test	EN 12350 - 6
FRESH CONCRETE	Measurement of Air Content (Pressure Methods)	EN 12350 - 7
HARDENED CONCRETE	Measurement Compressive Strength of Test Samples	EN 12390 - 3
SLEEPER	Measuring Dimensions	EN 13230 - 1
SLEEPER	Positive and Negative Moment Test	EN 13230 - 2
RAIL	Bending Test for Butt-Welded Rails	EN 14587 - 2
RAIL	Bending Test for Alumino Thermic Welded Rails	EN 14730 - 1 + AI





# ACCREDITATION AND *Management Systems Certifications*



## GROUP COMPANIES





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