RAILWAY CONCRETE PRODUCT

DESCRIPTION

Precast concrete products used in railway construction consist of Railway Sleepers, Turnouts, Catenary Poles, and Concrete Level Crossings (CLC).The use of high-quality precast concrete in Railway products results in good product durability, allowing them to last long-term. Railway sleepers use a prestressed system and are produced with the single line method (Monoblock) developed by WIKA Beton. This production system is very flexible and has high productivity.

WIKA Beton developed Turnout products to replace wooden turnouts, which have a relatively short lifespan and are becoming increasingly difficult to source. The Catenary Pole is a concrete pole product made using the centrifugal method, serving the electrification system on electric train tracks. CLC is an innovative WIKA Beton product used as vehicle crossing slab at level crossings between railway tracks and roads. This product is made in modular, making the installation and maintenance process faster and easier.

Other railway-related products include ballast protection walls, slabs/beams for railway bridges, etc.

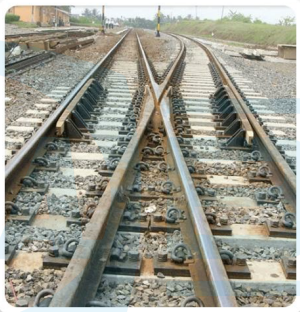
Type of Railway Product

PC Sleepers

PC Sleepers for Mainlane & Depo

PC Bearers

PC Bearers for Turnout, Scissors and Double Slip



PC Catenary Poles

PC Catenary Poles for Electrical Line

Precast Level Crossing

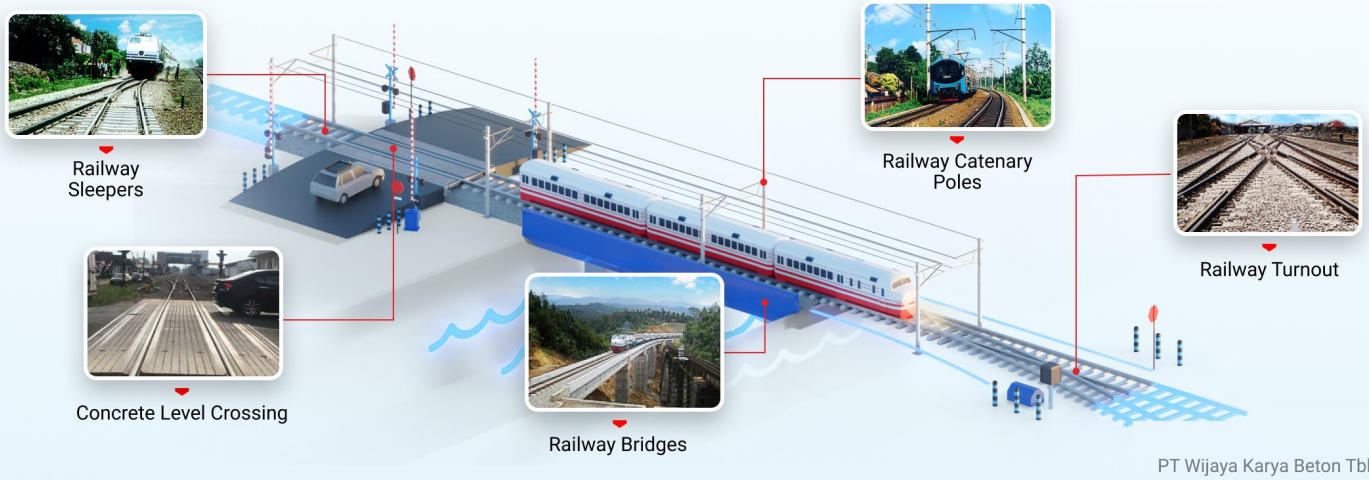
Precast Concrete for level crosing of railway and road

DESIGN REFERENCE

Design

PM No.20 - 2012	Technical Requirement for Railway
SNI 6880	Structural Concrete Spesification
SNI 8828	SNI Bantalan Beton dan Sistem Penambat untuk Jalan Rel
AREMA Chapter 30	American Railway Engineering and Maintenance of Way Association
BS EN 13230	Railway Application - Track - Concrete Sleepers and Bearers
AS 1085	Australian Standard for Prestressed Concrete Sleepers
TB/T 3080 - 2030	Technical Concrete Sleeper Railway Industry Standards
JIS A 5373	Precast Prestressed Concrete Products

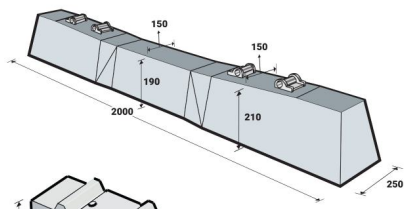
PRODUCT APPLICATION



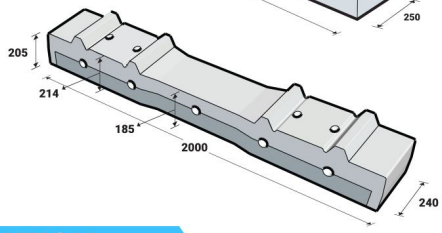
PRODUCT SHAPE

PC Sleepers

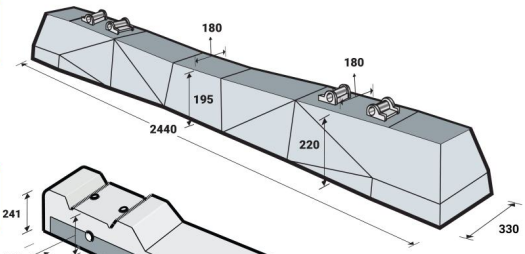
SLEEPER N-67 BALLASTED



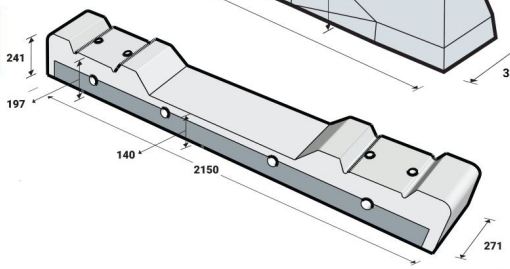
SLEEPER N-67 BALLASTLESS



SLEEPER S-35 BALLASTED



SLEEPER S-35 BALLASTLESS



SPECIFICATION

Ballasted Track

Track Gauge (mm)	Track Type	Design Axle Load (kN)	Design Speed (km/hour)	Sleeper Length (mm)	Compresive Strength (MPa)	Sleeper Weight (kg)	Design Bending Moments (kg.m)			
							Moments at Rail Seat		Moments at Centre	
							positive (+)	negative (-)	positive (+)	negative (-)
N-1067	Ballasted	180	150	2.000	52	190	860	602	590	590
S-1435	Ballastled	250	200	2.440	62	300	2.300	1.600	760	1.100

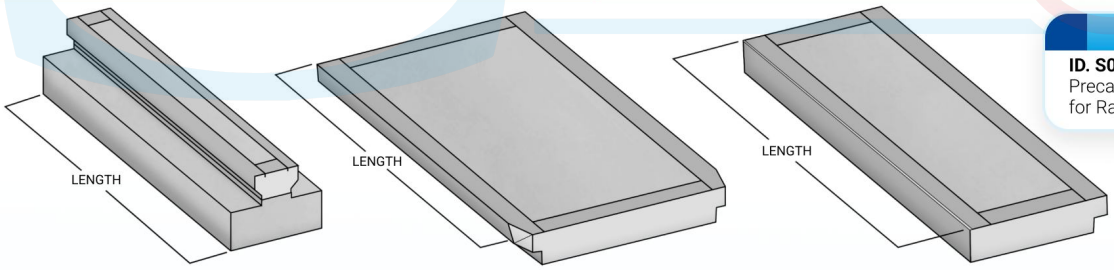
Ballastless Track

Track Gauge (mm)	Track Type	Design Axle Load (kN)	Design Speed (km/hour)	Sleeper Length (mm)	Compresive Strength (MPa)	Sleeper Weight (kg)
N-1067	Ballastless	180	150	2.000	52	250
S-1435	Ballastless	120	100	2.150	52	270
S-1435	Ballasted/Ballastless	300	50	2.600	52	328

PRODUCT SHAPE

Concrete Level Crossing

ID. S00202009173
Precast Modules
for Railway Level Crossing Construction



Module Foundation - P1 | **Module Slab - S1** | **Module Slab - S2**

SPECIFICATION

Concrete Compressive Strength fc = 52 MPa

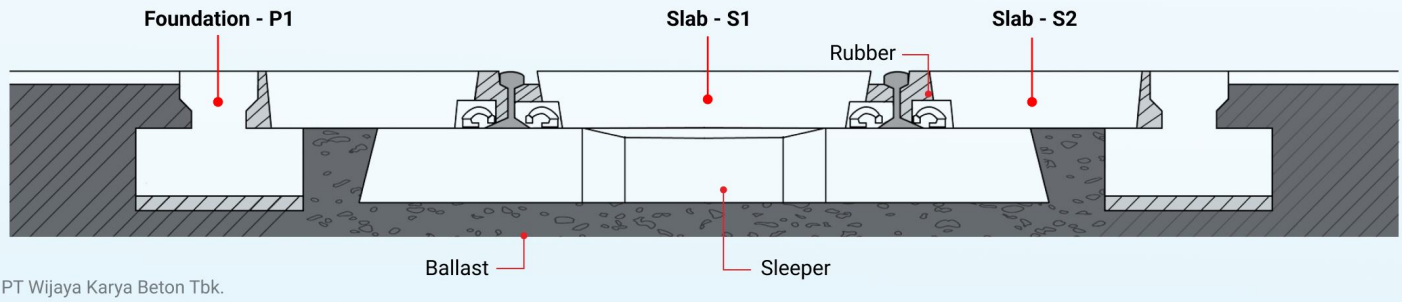
Module	Length (m)	Width (m)	Height (m)	Weight (kg/m)
P1	3 - 6	0,475	0,355	310
S1	3 - 6	0,987	0,155	350
S2	3 - 6	0,605	0,148	210

Note : for curved tracks, the module dimensions are customized to the track radius

Design Reference

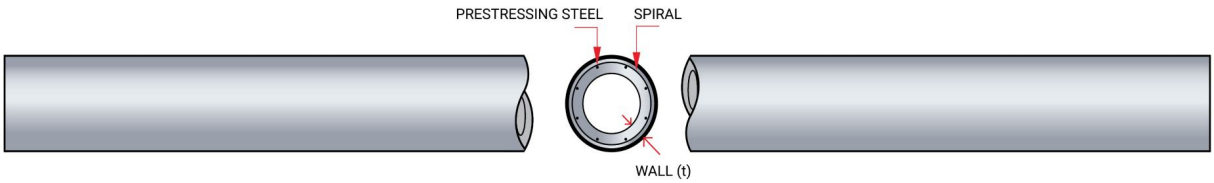
SNI 1725 : 2016	Indonesian Concrete Code : Design Load for Bridge
SK.770/KKA.401/DRJD/2005	Technical Guidelines for level crossings between roads and railway lines
SNI 6880 : 2016	Structural Concrete Specification
SNI T-12 : 2004	Indonesian Concrete Code : Bridge Concrete Design
SNI 3967 : 2008	Specifications for plain & coated elastomeric bearings for bridge placement

PRECAST SYSTEM



PRODUCT SHAPE

PC Catenary Poles



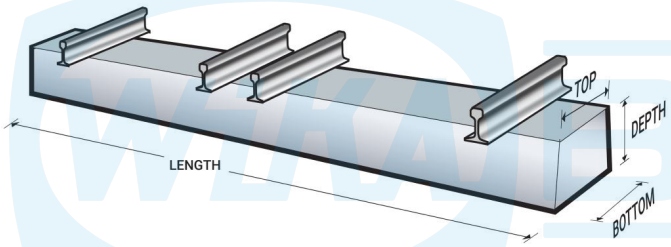
SPECIFICATION

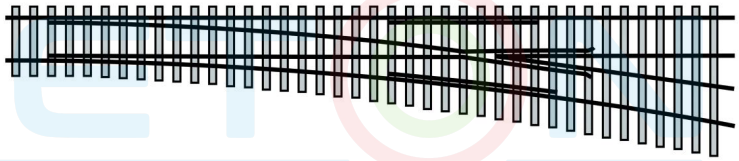
Concrete Compressive Strength fc' = 52 MPa

Type	Diameter (mm)	Thickness Wall (mm)	Cross Section (cm^2)	Section Inertia (cm^4)	Unit Weight (kg/m)	Bending Moment		Length of Pile (m)
						Crack (ton.m)	Ultimate (ton.m)	
C-50	350	70	616	64.115	154	5,00	10,00	11 - 12
C-65	350	70	616	64.115	154	6,50	13,00	11 - 12
C-75	350	70	616	64.115	154	7,50	15,00	11 - 14
C-110	400	75	766	106.489	191	11,00	22,00	11 - 14

PRODUCT SHAPE

PC Bearer





TURNOUT ARRANGEMENT

SPECIFICATION

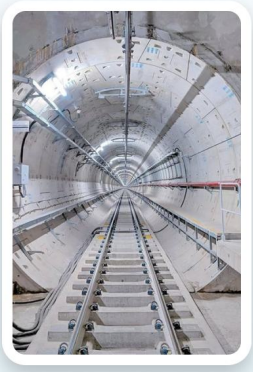
Concrete Compressive Strength fc' = 62 MPa

Type	Unit Weight (kg/m)	Dimension (mm)			
		Length	Depth	Bottom	Top
N1067 S1435	154	Variable	220	300	260

Note :
- Type, quantity and dimension of PC Bearer for Turnout, Scissors and Double Slip per arrangement is adjustable to customer requirement
- Type of fastening is adjustable to customer requirement

CUSTOMIZE RAILWAY PRODUCT

Trackwork & Signaling



Railway Tunneling

Railway Track Slab

Railway Bridge