

RAILWAY CONCRETE PRODUCT

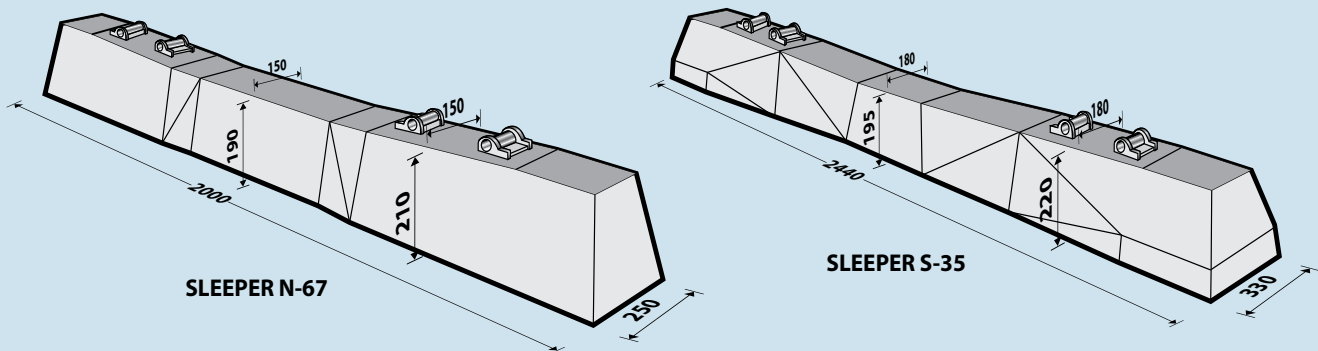
DESCRIPTION

Type of Railway Product : Prestressed Concrete Sleepers
 Prestressed Concrete Turnout Sleepers
 Prestressed Concrete Catenary Poles

DESIGN & MANUFACTURING REFERENCE

Design	PD No.10 - Perumka AREMA Chapter 30 - 2009 GOST 10629 - 1988 TB/T 3080 - 2030 JIS A 5309 - 1981	Indonesian Railways Design Reference American Railway Engineering Manintenance of Ways Prestressed Concrete Sleepers for Railway Wide 1520 mm Technical Concrete Sleeper Railway Industry Standards Prestressed Concrete Spun Poles
Manufacturing	WB - PCP - PS - 10	Production Manufacturing Procedure

PRODUCT SHAPE & SPECIFICATION | PC SLEEPERS



PC SLEEPERS DIMENSION

Type	Sleeper Length (mm)	Depth (mm)		Width at Rail Seat (mm)		Width at Center (mm)	
		at rail seat	at center	Upper	Bottom	Upper	Bottom
N-67	2000	210	190	150	250	150	226
S-35	2440	220	195	190	310	180	240
W-20	2700	195	145	224	300	182	250

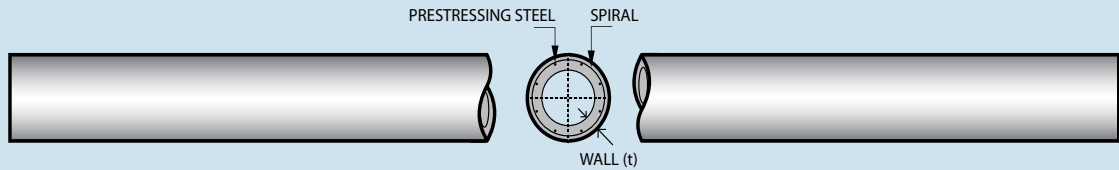
PC SLEEPERS SPECIFICATION

Concrete Compressive Strength $f_c' = 52 \text{ MPa}$ (Cube 600 kg/cm²)

Type * **	Track Gauge (mm)	Design Axle Load (ton)	Train Speed (km/h)	Sleeper Weight (kg)	Design Bending Moments (kg.m)				Design Reference ***
					Moments at Rail Seat		Moments at Centre		
					positive (+)	negative (-)	positive (+)	negative (-)	
N-67	1067	18	120	190	1500	750	660	930	PERUMKA PD - 10
S-35	1435	25	200	330	2300	1500	1300	2100	AREMA
W-20	1520	23	120	275	1300	-	-	980	GOST 10629 Grade-1

Note : *) Type of Rail is available for R-33, R-38, R-40, R-42, R-50, R-54 & R-60
 **) Type of fastening is available for Pindad E-Clip, Pandrol E-Clip, Vossloch Clip, DE-Clip or others adjustable to customer requirement
 ***) Standard design reference is adjustable to customer requirement

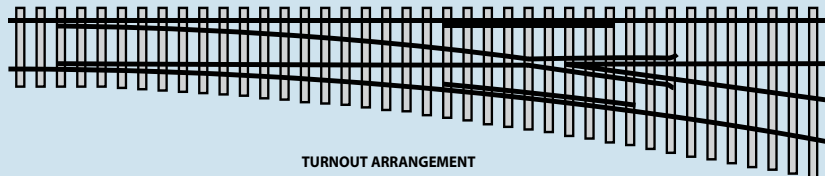
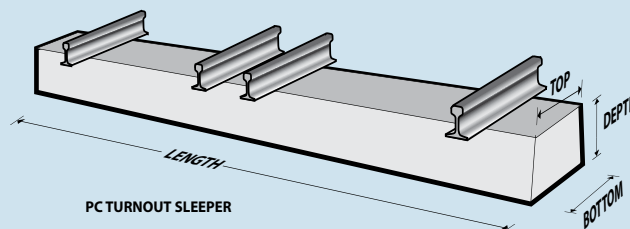
PRODUCT SHAPE & SPECIFICATION | PC CATENARY POLES



PC CATENARY POLES SPECIFICATION Concrete Compressive Strength $f_c' = 52 \text{ MPa}$ (Cube 600 kg/cm^2)

Type	Outside Diameter (mm)	Thickness Wall (mm)	Cross Section (cm ²)	Section Inertia (cm ⁴)	Unit Weight (kg/m)	Bending Moment		Length of Pole (m)
						Crack (ton.m)	Ultimate (ton.m)	
C-50	350	70	616	64,115	154	5.00	10.00	9 - 12
C-65	350	70	616	64,115	154	6.50	13.00	10 - 14
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
C-150	450	80	930	166,570	232	15.00	30.00	12 - 15

PRODUCT SHAPE & SPECIFICATION | PC TURNOUT & SCISSORS SLEEPERS



SPECIFICATION Concrete Compressive Strength $f_c' = 60 \text{ MPa}$ (Cube 700 kg/cm^2)

Type	Sleeper Quantity (pcs/set)	Unit Weight (kg/m)	Dimension (mm)			
			Length	Depth	Bottom	Top
Turnout 1:10	55	154	Variable	220	300	260
Turnout 1:12	74					
Scissor 1:10	34					

Note :

1. Type, quantity and dimension of PC Turnout or Scissor Sleeper per arrangement is adjustable to customer requirement
2. Type of fastening is adjustable to customer requirement

PRODUCT APPLICATION



Railway Sleepers



Railway Catenary Poles



Railway Turnout



Railway Bridges