Dedication for Movement

Gedung Teraskita
Jl. MT. Haryono Kav. No. 10A
Jakarta Timur 13340
T. (021) 22892999 / 29838020
F. (021) 29838025
waskitaprecast.co.id

Kantor Area Pemasaran

AREA 1

Di Aceh, Sumatera Utara, Riau, Kepulauan Riau, dan Sumatera Barat

Jalan Patriot No.10 Kp. Lalang
Medan, Sumatera Utara
Email : info@waskitaprecast.co.id

AREA 2

Sumatera Selatan, Bangka Belitung, Jambi, Bengkulu dan Lampung

Jl Gubernur H. Ahmad Bastari,
Kec. Seberang Ulu I, Kota Palembang
Sumatera Selatan 30967
Email : info@waskitaprecast.co.id

AREA 3

DKI Jakarta, Banten dan Jawa Barat

Tamansari Hive Office Tower
Jl D.I Panjaitan, Kav.2, Cawang
Jakarta Timur 13350
Email : info@waskitaprecast.co.id

AREA 4

Jawa Tengah, DIY, Kalimantan

Jl Ring Road Utara, Ruko Panda Kav. O
(depan polda DIY) Condong Catur
Depok, Sleman
Email : info@waskitaprecast.co.id

AREA 5

Jawa Timur, Bali, Nusa Tenggara Barat, dan Nusa Tenggara Timur

Jl. Raya Prambon Km 36
Ds. Kedungwonokerto,
Prambon, Sidoarjo, Jawa Timur
Email : info@waskitaprecast.co.id

AREA 6

Sulawesi, Kepuluan Maluku dan Papua

Jalan Mapala 22-3, Tidung
Kec. Rappocini
Kota Makassar
Sulawesi Selatan 90222
Email: info@waskitaprecast.co.id

WASKITA precast

Dedication for Movement

4 Tahun WASKITA precast

PT Waskita Beton Precast Tbk

PRODUCT CATALOG

1. HEAD OFFICE
Teraskita Building
Jl. Letjen MT. Hayono No. 10 A, Cawang, Kramat Jati, Jakarta Timur 13630

2. PLANT GASING
Jl. Raya Tanjung api-api, Km. 14, No. 15, Kec. Talang Kelapa, Kab. Banyuasin, Palembang, Sumatera Selatan

3. PLANT PALEMBANG
Jl. Soekarno Hatta No. 98 Kel.Talang Kelapa, Kec. Alang-alang Lebar, Kota Palembang - Sumatera Selatan 30153

4. PLANT BOJONEGARA
Jl. Raya Bojonegara-Salira, Kp. Solor lo 18/8, Margagiri, Kec. Bojonegara Kab. Serang, Banten, Kode pos 42455

5. PLANT CIBITUNG
Jl. Imam Bonjol No. 52, Ds. Kalijaya,
Kec. Cikarang Barat, Bekasi,
Jawa Barat, 17530

6. PLANT KARAWANG
Jl. Raya Curug Kosambi, Dusun Krajan II
Desa Curug, Kec. Klari, Kab. Krawang,
Jawa Barat, 41370

7. PLANT SUBANG
Jl. Raya Purwadadi Km. 1, RT 007, RW 001,
Desa Kaliangsana, Kec. Kalijati, Kabupaten
Subang 41271

8. PLANT SADANG
Jl. Raya Sadang, Kp. Mekarsari RT.05/RW.02
Desa Cibatu, Kec. Cibatu, Kab. Purwakarta,
Jawa Barat

9. PLANT KALIJATI
Wantilan, Kec. Cipendeuy, Kab.
Subang, Jawa Barat 41272

10. PLANT KLATEN
Jl. Karahuni Dukuh Suren
RT. 002/RW. 003 Desa Dlima, Kec. Ceper,
Kab. Klaten, Jawa Tengah 57465

11. PLANT LEGUNDI
Jl. Raya Wringinanom Desa Lebani
Waras, Kec. Wringinanom, Kab. Gresik,
Jawa Timur 61176

12. PLANT SIDOARJO
Jl. Raya Prambon, Ds. Kedung,
Kec. Prambon, Kab. Sidoarjo
Jawa Timur 61264

TABLE OF CONTENTS

1. SPUN PILE 300mm - 1200mm 04

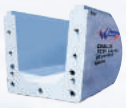
2. SQUARE PILE 10

3. CCSP 14

4. FCSP & FRSP 18

5. PC-I GIRDER 22

6. PC-U GIRDER 27



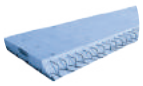
7. RC PIPE 30

9. PC-T GIRDER 32

10. BOX GIRDER 35

11. U – DITCH & COVER 39

12. BOX CULVERT 42

12. FULL SLAB 44


13. HALF SLAB 47

14. SPRIG WP 49

15. VOIDED SLAB 51

16. BEAM-COLUMN PRECAST 54

17. TETRAPOD 56

18. MOVABLE CONCRETE BARRIER (MCB) 58

19. CONCRETE SLEEPER FOR RAILWAY 60

20. FACADE 63

21. ELECTRIC POLES 66

22. READY MIX 69

SPUN PILE
300MM - 1200MM

DESCRIPTION

Pile that capable to support axial forces, and bending moment. This product have advantages in bending moment capacity. This produt suitable to use in structure with dominant lateral forces such as bridges and docks. For Spun Pile with C-T connector, this product can be used as retaining wall Structure. This product can also to be used on another structure.

TECHNICAL

Type of Pile	: Prestresed Concrete Spun Pile
Joint System	: Welded at joint Plate
Type of shoe	: Pencil (Typical Product) Mamira (By Order) Cross Shoe (By Order)
Method of Driving	: Diesel or Hydraulic Hammer Hydraulic Static Pile Driving Innerboring

DESIGN & MANUFACTURING REFERENCE

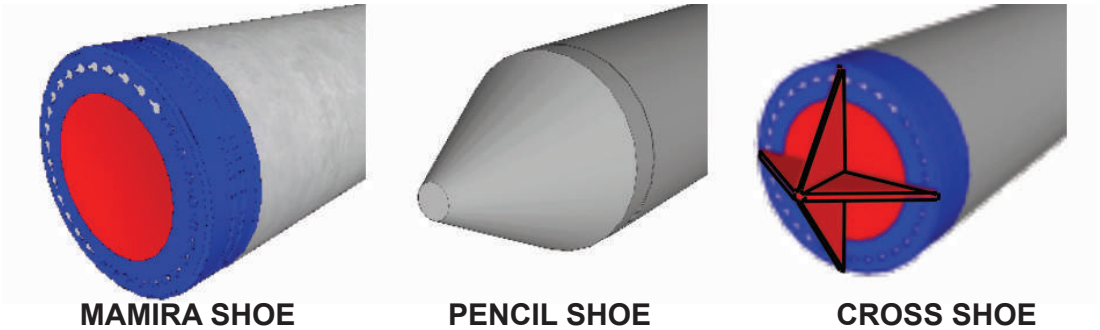
Design	JIS A5335-1987	Prestressed Concrete Spun Pile
	JIS 543-00	Design, Manufactured and Installation of Concrete Piles
	SNI 03-2847-2013	Indonesian Concrete Code

SPECIFICATION OF SOURCE MATERIAL

ITEM	SPECIFICATION	REFERENCE	
Aggregate		ASTM C33 - 2016	(Standard Specification Concrete Aggregates)
		SNI 8321-2016	(Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 600 kg/cm^2 (Cube), 50 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Wire	SBPDL 1275/1420	JIS G 3536 : 2008	(Steel Wires And Strands for Prestressed Concrete)
	KBjP-R	SNI 1155 : 2011	(Uncoated Steel Wire for Prestress Concrete (KBjP/Pc Wire))
PC Bar	SWPD-1	JIS G 3137 : 2008	(Small Diameter Steel Bars for Prestressed Concrete)
	KBjP-Q RI	SNI 7701 : 2011	(Quench Steel Bar for Precast Concrete (PC Bar/ KBjP-Q))
Spiral Wire	SWM-A / SWM-P	JIS G 3532 : 2011	(Low Carbon Steel Wires)
Joint Plate	SS400	JIS G 3101 : 2011	(Roled Steel for General Structure)
Mamira Shoes	SS400	JIS G 3101 : 2011	(Roled Steel for General Structure)
C-T Connector	For Female Connector : Steel Pipe Ø165,2 x 12 (SS400)	JIS G 3101 : 2011	(Roled Steel for General Structure)
	For Male Connector : "T" Profile Steel (SS400)		
Welding	AWS E7016 (For jointing spun pile)	AWS D1.1 : 2000	(Structural Welding Code - Steel)
	AWS E6013 (For Installing C-T Connector)		

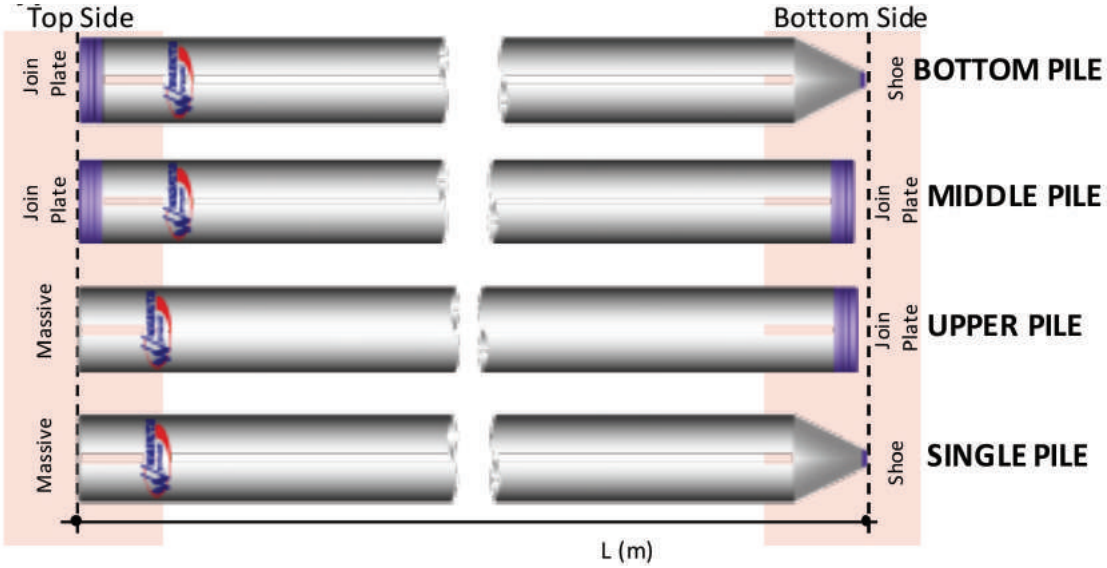
Spun Pile on Pejagan Pemalang Toll Road - PPTR

TYPE OF SHOES



MAMIRA SHOE | PENCIL SHOE | CROSS SHOE

TYPE OF PILE & PRODUCT DIMENSION

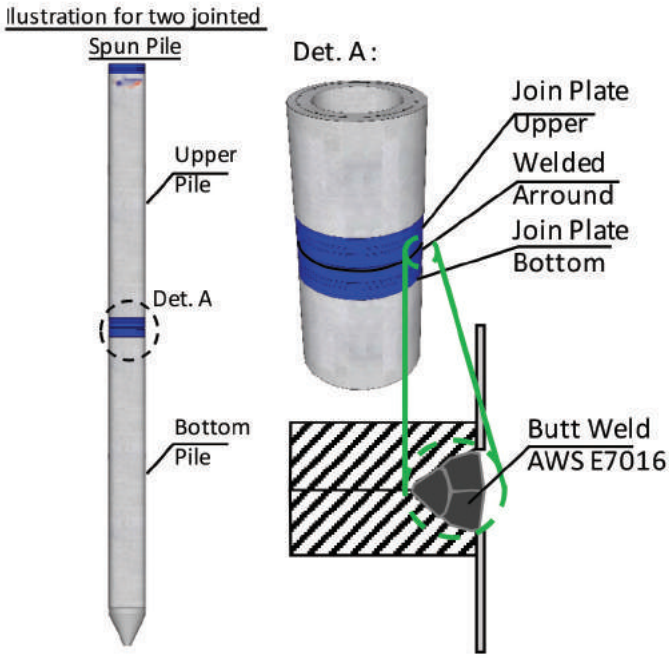


SPUN PILE
300MM - 1200MM

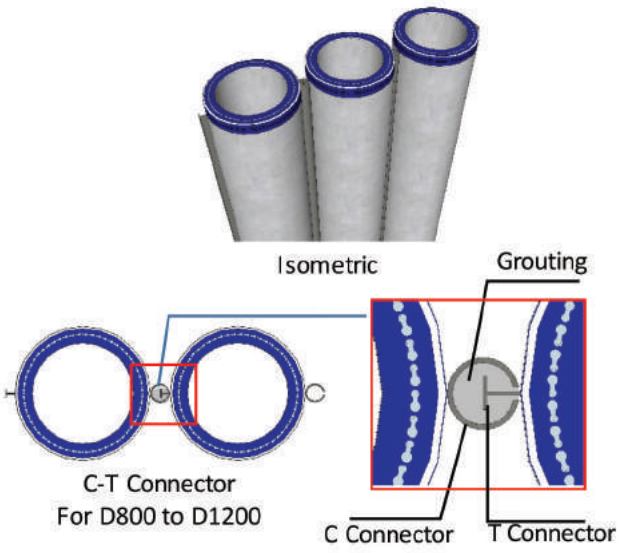
Outsided Diameter D (mm)	Wall Thickness T (mm)	Class	Concrete Cross Section (cm2)	Unit Weight (kg/m)	Length L (m)	Bending Moment		Allowable Axial Load (ton)
						Crack (ton.m)	Ultimate (ton.m)	
300	60	A2	452	113	6 - 13	2,50	3,75	72,60
		A3				3,00	4,50	70,75
		B				3,50	6,30	67,50
		C				4,00	8,00	65,40
350	65	A1	582	145	6 - 15	3,50	5,25	93,10
		A3				4,20	6,30	89,50
		B				5,00	9,00	86,40
		C				6,00	12,00	85,00
400	75	A2	766	191	6 - 16	5,50	8,25	121,10
		A3				6,50	9,75	117,60
		B				7,50	13,50	114,40
		C				9,00	18,00	111,50
450	80	A1	930	232	6 - 16	7,50	11,25	149,50
		A2				8,50	12,75	145,80
		A3				10,00	15,00	143,80
		B				11,00	19,80	139,10
		C				12,50	25,00	134,90
500	90	A1	1.159	290	6 - 16	10,50	15,75	185,30
		A2				12,50	18,75	181,70
		A3				14,00	21,00	178,20
		B				15,00	27,00	174,90
		C				17,00	34,00	169,00
600	100	A1	1.571	393	6 - 16	17,00	25,50	252,70
		A2				19,00	28,50	249,00
		A3				22,00	33,00	243,20
		B				25,00	45,00	238,30
		C				29,00	58,00	229,50
800	120	A1	2.564	641	6 – 24 >24 upto 35*)	40,00	60,00	412,00
		A2				45,00	67,50	408,20
		A3				49,00	73,50	400,70
		B				55,00	99,00	385,20
		C				65,00	130,00	373,10
1000	140	A1	3.782	946	6 - 24 >24 upto 40*)	75,00	112,50	614,40
		A2				81,00	121,50	606,40
		A3				95,00	142,50	589,30
		B				105,00	189,00	571,20
		C				120,00	240,00	555,70
1200	150	A1	4.948	1.237	6 – 24 >24 upto 50*)	120,00	180,00	759,10
		A2				134,00	201,00	791,10
		A3				156,00	234,00	768,00
		B				170,00	306,00	736,70
		C				200,00	400,00	718,20

*) : Special Order

JOINT SYSTEM



Type of Lateral Connection (By Order)



BEARING CAPACITY ESTIMATION

Based on : SE PUPR; No. 31/SE/M /2015

Hilley Equation

$$P_u = \frac{2e_f \times w \times H}{s + (c_1 + c_2 + c_3)/2} \cdot \frac{W + n^2 W_p}{W + W_p}$$

$$P_a = \frac{P_u}{N}$$

Where :

H	: Ram Stroke (m)
s	: Penetration per Blow (cm)
W	: Ram Weight (ton)
W_p	: Pile Weight (ton)
e_f	: Hammer Efficiency (See Table 1)
n	: Restution Coefficient (See Table 3)
C_1	: Immediate stress that permitted on pile head (See Table 2)
C_2	: Immediate stress that permitted for elastic deformation on pile (See Table 4)
C_3	: Immediate stress that permiteed for eqrthquake on site (See Table 4)
N	: Safety factor (N=3)

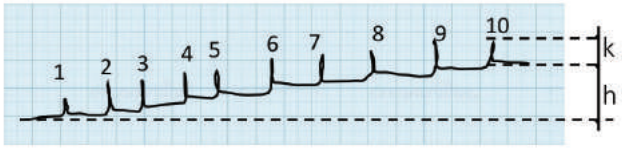
If pile driving has been done (C1+C2+C3) can be replaced by "k" value from calendering graph

OTHER EQUATION

Type of Hammer	Type of Pile	Common Equation
Gravity	Steel, steel sheet	$P = \frac{3WH}{S+0,35}\left(\frac{W}{(W+X)}\right)$
Steam (Single Act.)	All Type	$P = \frac{2WH}{S+0,1}$
Steam (Double Act.)	All Type	$P = \frac{2E}{S+0,1}$
Diesel Hammer	All Type	$P = \frac{1,6E}{S+0,1\left(\frac{x}{W}\right)}$

* For diesel hammer, if (X/W) value less than 1, took 1 value

Calendering Graph Interpretation



s = h / 10 | K = Rebound Value

TABLE 1

Hammer Type	Efficiency (ef)
Drop Hammer	0,75 - 1,00
Single Act. Hammer	0,75 - 0,85
Double Act. Hammer	0,85
Diesel Hammer	0,85 - 1,00

TABLE 3

Material	n
Wooden Pile	0,25
Wooden Bearing above Steel Pile	0,32
Wooden Bearing on Steel Pile	0,4
Steel Pile without wooden bearing / Concrete Pile with bearing	0,5
Cast iron hammer above concrete pile without cap	0,4

SPUN PILE
300MM - 1200MM

TABLE 2

Material	C_1 (mm) Driving stress on pile head			
	3,5 MPa	7,0 MPa	10,5 MPa	14,0 MPa
Pole or steel pipe - Direct on pile head - Direct on wooden pile head	 0 1	 0 1	 0 3	 0 5
Precast concrete pile with 75 – 100 mm cap thickness	3	6	9	12,5
Steel cap that contain wood for H-Steel pile or steel pipe pile	1	2	3	4
Cap block that contain 5 mm fiber component between two 10mm thickness steel plate	0,5	1	1,5	2

TABLE 4

Stress	Material	Easy driving	Medium driving	Hard driving	Very hard driving
Pile Length, c_2	Wooden Pile ($E = 10\ kN/mm^2$)	0,33 L	0,67 L	1,0L	1,3 L
	Precast Concrete Pile ($E = 14\ kN/mm^2$)	0,25 L	0,5 L	0,75 L	1,0 L
	Steel Pile ($E = 200\ kN/mm^2$)	0,25 L	0,5 L	0,75 L	1,0 L
Earthquake, c_3	Soil around pile and below pile	1,3	1,3 - 2,5	3,8 - 6,	1,3 - 3,8

Note: L is pile length (m)

GUIDE FOR CHOOSING HAMMER TYPE

STEP-1

CALCULATE CYLINDER WEIGHT

W = 0,5 P + 600

P = PmL

Wheres :

W : Cylinder Weight (kg)
P : Pile Weight (kg)
Pm : Pile Unit Weight (kg/m)
L : Pile Length (m)

Source : Buku Pondasi Tiang Pancang Vol. I, Ir. Sardjono Hs

STEP-2

CHOOSE DIESEL HAMMER TYPE

Type	Cylinder Weight (kg)	Max. Cyl Stroke (m)	Frequency (Times/ min)
DD18	1800	2,1	40 - 60
DD25	2500	2,5	40 - 50
DD32	3200	2,5 / 30	40 - 50
DD40	4000	2,5 / 30	35 - 50
DD53	5300	2,5 / 30	45 - 50
DD63	6300	2,5 / 30	35 - 50
DD73	7300	2,5 / 30	35 - 50
DD83	8300	2,5 / 30	35 - 50
DD103	10300	2,5 / 30	35 - 50
DD113	11300	2,5 / 30	35 - 50
DD128	12800	2,5 / 30	35 - 50
DD160	16000	2,5 / 30	36 - 50
DD180	18000	2,5 / 30	37 - 50
DD200	20000	2,5 / 30	38 - 50

Source : Indotrading.com

Spun Pile on Board

Spun Pile on KLBM (Krian-Legundi-Bunder-Manyar) Toll Road

Spun Pile on Toll Road Interchange Pelindo

Spun Pile CT 800mm on NCICD Project

Spun Pile 1200mm

SQUARE PILE

DESCRIPTION

Pile that capable to support axial force, and bending moments. Pile that have dominant axial force capacity. Generally used for building foundations, and also other structure with dominant axial forces

TECHNICAL

Type of Pile : Prestresed Concrete Square Pile
Joint System : Welded at Steel Joint Plate
Type of shoe : Pencil (Typical Product)
Method of Driving : Diesel or Hydraulic Hammer

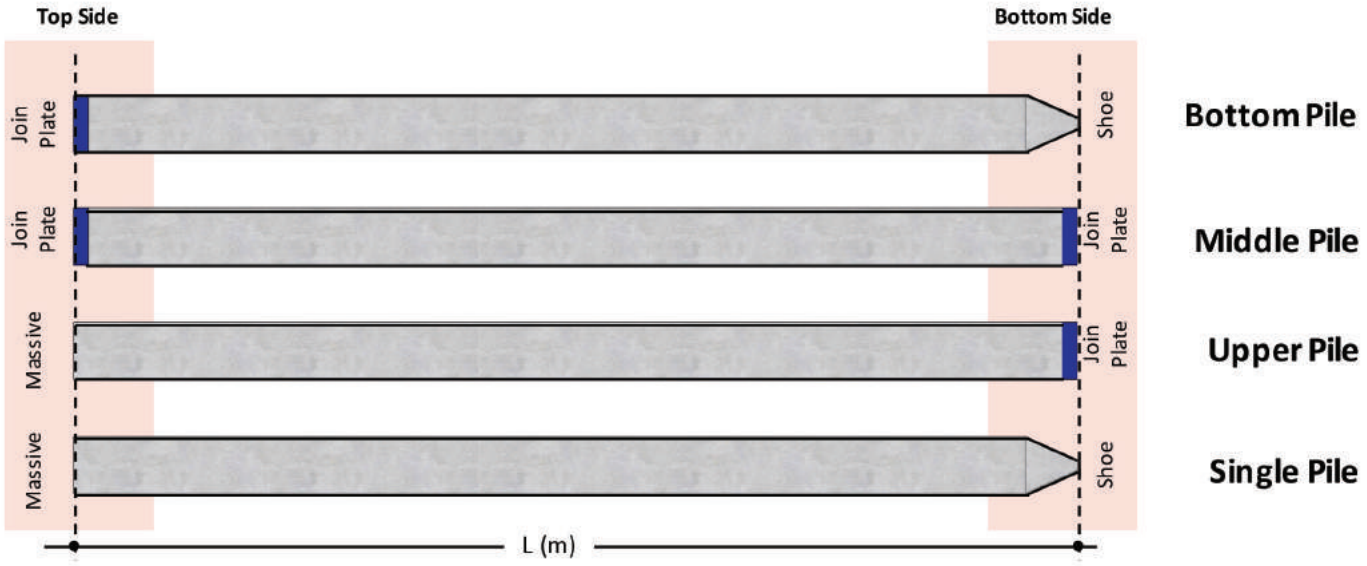
DESIGN & MANUFACTURING REFERENCE

Design	ACI 543R- 15	Design, Manufacture and Installation
	SNI 03-2847-2013	Indonesian Concrete Code

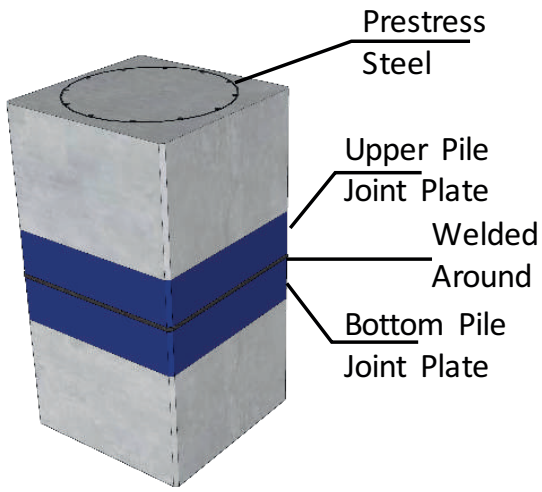
SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016	(Standard Specification Concrete Aggregates)
		SNI 8321-2016	(Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compresive Strength at 28 Days : 500 kg/cm^2 (Cube), 42 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Strand	KBjP-P7 RB	SNI 1154-2011	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7))
	Grade 270	ASTM A-416	(Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete)
	SWPR7BL	JIS G 3536 : 2014	(Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Spiral Wire	SWM-A / SWM-P	JIS G 3532 : 2011	(Low Carbon Steel Wires)
Reinforcement	BjTS 40 For D ≥ 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
Bar	BjTP 24 For D < 13mm		
Joint Plate	SS400	JIS G 3101 : 2011	(Roled Steel for General Structure)
Welding	AWS E7016	AWS D1.1 : 2000	(Structural Welding Code - Steel)

TYPE OF SQUARE PILE



JOINT DETAIL

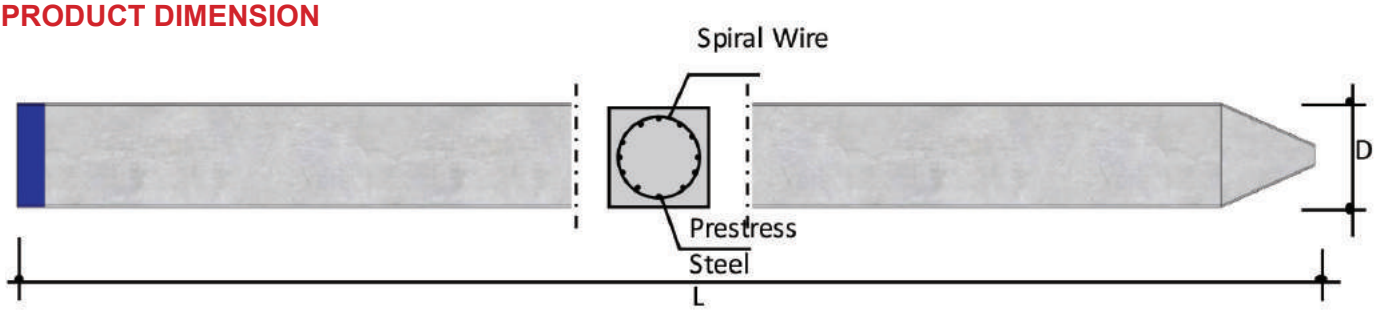


SELECTION OF PILE DRIVE

Pile Dimension	Type of Diesel Hammer	
	Single Pile	Jointed Pile
25 x 25	K 13	K 13 / K 25
30 x 30	K 13	K 25 / K 35
35 x 35	K 25	K 35
40 x 40	K 25 / K 35	K 35 / K 45
45 x 45	K 35 / K 45	K 45 / KB 45
50 x 50	K 45 / KB 45	K 45 / KB 45 / KB 60

SQUARE PILE

PRODUCT DIMENSION



PRODUCT DIMENSION

Dimension (D) (cm)	Class	Unit Weight (kg/m)	Bending Moment		Allowable Axial Load (Ton)	Length of Pile (L) (m)
			Cracking (Ton.m)	Nominal (Ton.m)		
25 x 25	A	156	2,25	3,84	81,40	6 - 12
	B		2,50	4,81	79,62	6 - 14
	C		2,76	5,77	77,92	6 - 16
30 x 30	A	225	3,62	5,77	118,59	6 - 12
	B		3,95	6,92	116,76	6 - 14
	C		4,33	8,30	114,66	6 - 16
	D		4,88	10,38	111,60	6 - 18
35 x 35	A	306	5,22	7,30	163,98	6 - 12
	B		5,91	9,69	160,68	6 - 14
	C		6,58	12,11	157,45	6 - 16
	D		7,24	14,53	154,32	6 - 18
40 x 40	A	400	7,84	11,07	213,96	6 - 14
	B		8,64	13,83	210,60	6 - 16
	C		9,43	16,61	207,32	6 - 18
	D		11,65	24,91	198,01	6 - 20
45 x 45	A	506	11,11	15,57	270,98	6 - 14
	B		12,02	18,68	267,61	6 - 16
	C		12,90	21,80	264,30	6 - 18
	D		14,63	28,02	257,88	6 - 20
50 x 50	A	625	15,07	20,76	335,12	6 - 14
	B		16,08	24,21	331,72	6 - 16
	C		17,08	27,68	328,38	6 - 18
	D		18,06	31,13	325,09	6 - 20

Square Pile on Board

Square Pile on Grand Icon's Apartment Caman Project

Square Pile on Apartment Grand Icon Caman

Square Pile on Toll Kayu Agung Kapal Betung, Sumatera

Square Pile on Hermina Hospital, Palembang

Square Pile on Project Logos Metrolink

CCSP

DESCRIPTION

Sheet pile which has corrugated geometry causes sheet pile to have a large bending moment capacity. Sheet pile is suitable for use as a retaining wall with a deep embedment depth. Drive efficiently cause this sheet pile have 1 m width.

TECHNICAL

Type of Sheet Pile : CCSP (Corrugated Concrete Sheet Pile) Prestressed

System of Joint Between Sheet Pile : Male-Female (Typical)
Water Tight Joint (Special Order)

Method of Driving : Vibro or Diesel Hammer (Typical)
Vibro Hammer and Water Jet (Typical)

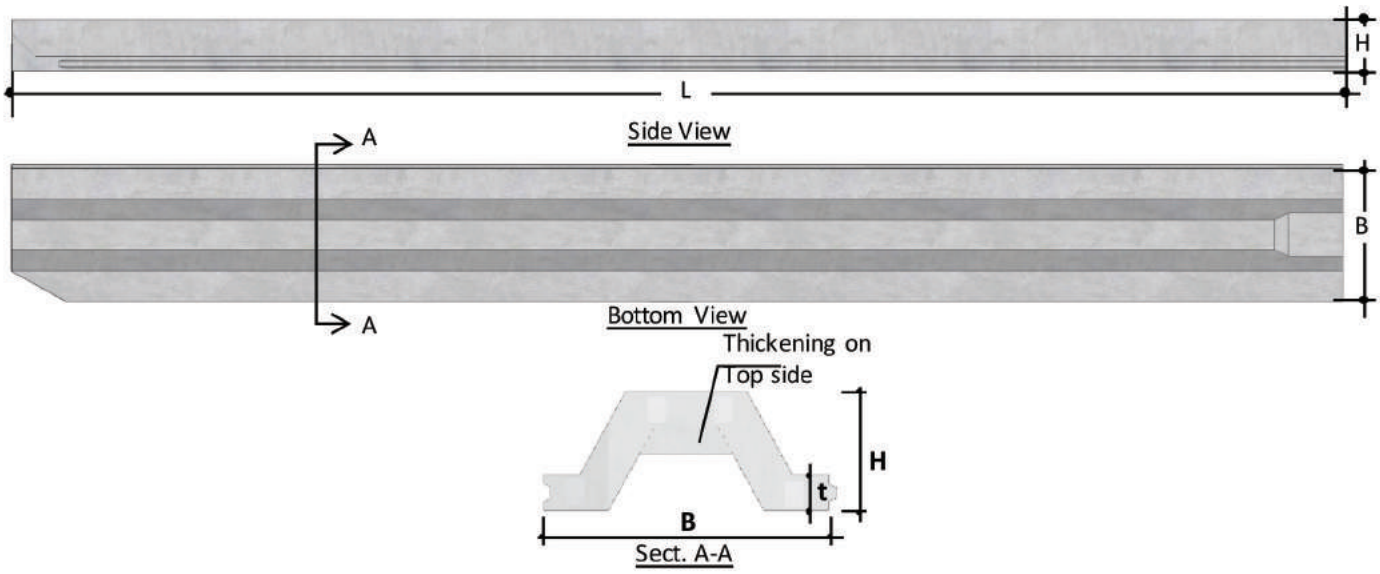
DESIGN & MANUFACTURING REFERENCE

Design	JIS A5326 - 1988	Prestressed Concrete Sheet Piles
	SNI 03-2847-2013	Indonesian Concrete Code
	JIS A5373 - 2010	Precast Prestressed Concrete Product

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016	(Standard Specification Concrete Aggregates)
		SNI 8321-2016	(Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 700 kg/cm^2 (Cube), 55 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Strand	KBjP-P7 RB	SNI 1154-2011	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/ KBjP-P7))
	Grade 270	ASTM A-416	(Standard Specification for Uncoated Seven_ Wire Stress Relieved Srand for Prestressed Concrete)
	SWPR7BL	JIS G 3536 : 2014	(Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Reinforced Rebar	BjTS 40 For D ≥ 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
	BjTP 24 For D < 13mm		

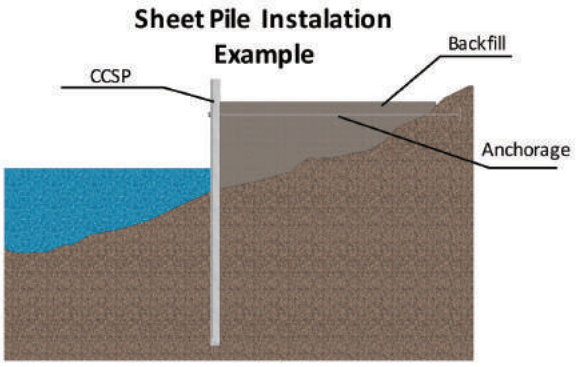
PRODUCT DIMENSION

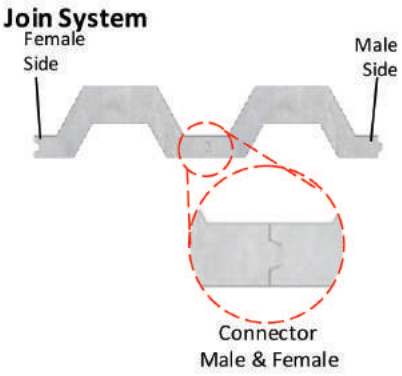


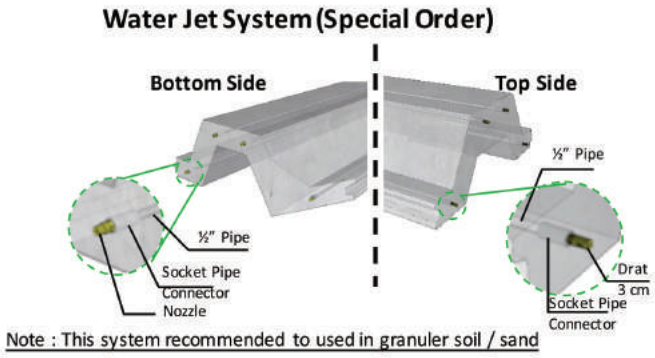
Type	Height H (mm)	Thickness t (mm)	Width W (mm)	Cross Section (cm2)	Moment of Inertia (cm4)	Unit Weight (kg/m)	Crack Moment (Ton.m)	Panjang L (m)
W-325 A 1000	325	110	996	1.315	134.261	329	11,4	8 -13
W-325 B 1000							13,3	8 - 14
W-350 A 1000	350	120	996	1.468	139.432	368	15,6	9 - 15
W-350 B 1000							17,0	10 - 15
W-400 A 1000	400	120	996	1.598	248.685	400	20,1	10 - 16
W-400 B 1000							23,4	11 - 16
W-450 A 1000	450	120	996	1.835	353.354	459	26,9	11 - 17
W-450 B 1000							30,7	11 - 17
W-500 A 1000	500	120	996	1.818	462.362	455	35,2	12 - 17
W-500 B 1000							40,4	13 - 18
W-600 A 1000	600	120	996	2.078	765.907	525	50,6	12 - 17
W-600 B 1000							59,6	13 – 21 > 21 Up to 27 *)
W-900 A 1000 *)	900	130	996	3.221	2.827.998	814	125,0	Up to 35 m

*) = Special Order

CCSP







CCSP L7 on RDMP Pertamina Project, Balikpapan

CCSP on Board

CCSP on Project NCICD National Capital Integrated Coastal Development)

Guide For Choosing Vibro Hammer
Determining Driving Classification

Step-1

If Using nSPT Value

Soil Type	Normal Extracting	Normal Driving	Heavy Driving
Fine	1 - 6	7 - 17	18 - 35
Medium	3- 8	9 - 22	23 - 42
Coarse	5 - 10	11 - 27	28 - 48

If using Cone Resistance (CPT) Value

Soil Type	Normal Extracting	Normal Driving	Heavy Driving
Fine	3 - 18	19 - 44	45 - 80
Medium	5 - 16	17 - 46	47 - 80
Coarse	5 - 14	15 - 40	41 - 65

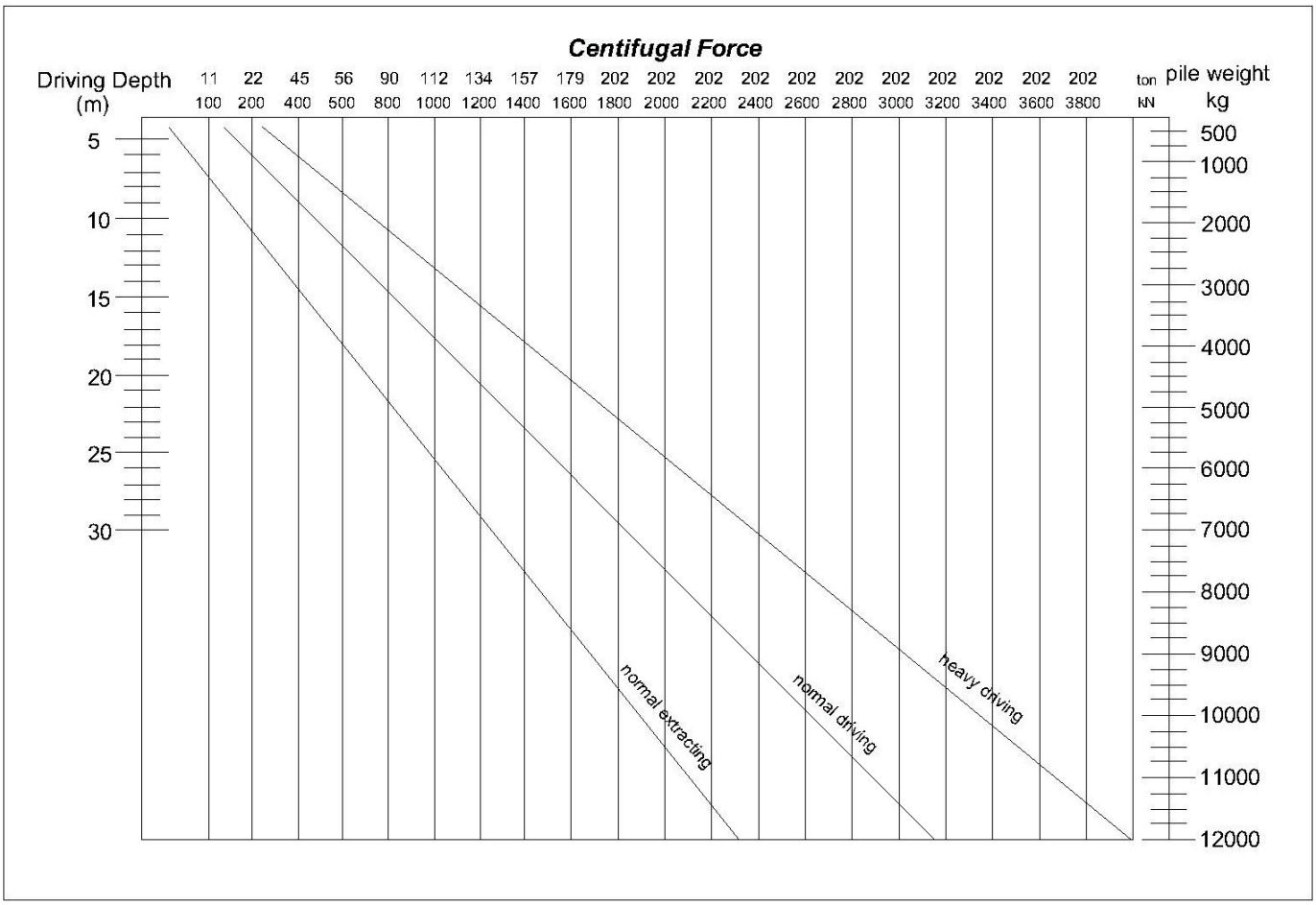
Step-2

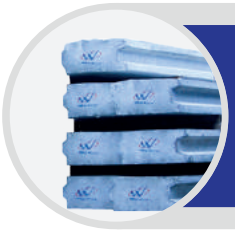
Calculating Pile Weight

Pile Weight (kg) = Unit Weight (kg/m) x Pile Length (m)

Step-3

Nomogram to calculate Vibro Hammer Centrifugal Force





FCSP & FRSP

DESCRIPTION

Sheet pile which has a flat geometry, so that the bending moment is not too big compared to CCSP, but has a lighter weight which makes the shipping process easier. This sheet pile is suitable for shallow embedment depth retaining wall

TECHNICAL

Type of Sheet Pile	:	FCSP (Flat Concrete Sheet Pile) Prestressed FRSP (Flat Reinforced Sheet Pile) Non-Prestressed
System of Joint Between Sheet Pile	:	Male-Female (Typical) Water Tight Joint (Special Order)
Method of Driving	:	Vibro or Diesel Hammer (Typical) Vibro Hammer and Water Jet (Typical)

DESIGN & MANUFACTURING REFERENCE

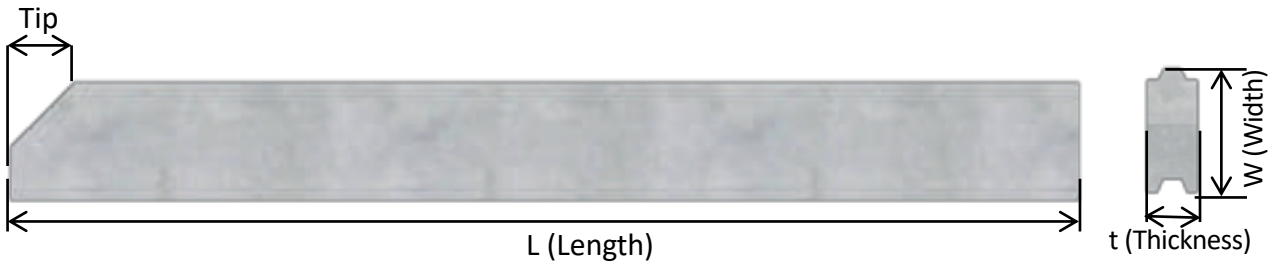
Design	JIS A5326 - 1988	Prestressed Concrete Sheet Piles
	SNI 03-2847-2013	Indonesian Concrete Code
	JIS A5373 - 2010	Precast Prestressed Concrete Product
	JIS A5325 - 1990	Reinforced Concrete Sheet Pile

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	FCSP Compressive Strength at : 28 Days : 700 kg/cm^2 (Cube), 55 MPa (Cylinder) FRSP Compressive Strength at : 28 Days : 350 kg/cm^2 or 500 kg/cm^2(Cube) , 30 MPa or 42 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Strand	KBjP-P7 RB Grade 270 SWPR7BL	SNI 1154-2011 ASTM A-416 JIS G 3536 : 2014	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7)) (Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete) (Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
PC Wire	SBPDL 1275/1420 KBjP-R	JIS G 3536 : 2008 SNI 1155 : 2011	(Steel Wires and Strands for Prestressed Concrete) (Uncoated Steel Wire for Prestress Concrete (KBjP/Pc Wire))

Item	Specification	Reference	
PC Bar	SWPD-1	JIS G 3137 : 2008	(Small Diameter Steel Bars For Prestressed Concrete)
	KBjP-Q RI	SNI 7701 : 2011	(Quench Steel Bar for Precast Concrete (Pc Bar/KBjP-Q))
Reinforced Rebar	BjTS 40 For D ≥ 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
	BjTP 24 For D < 13mm		

PRODUCT DIMENSION



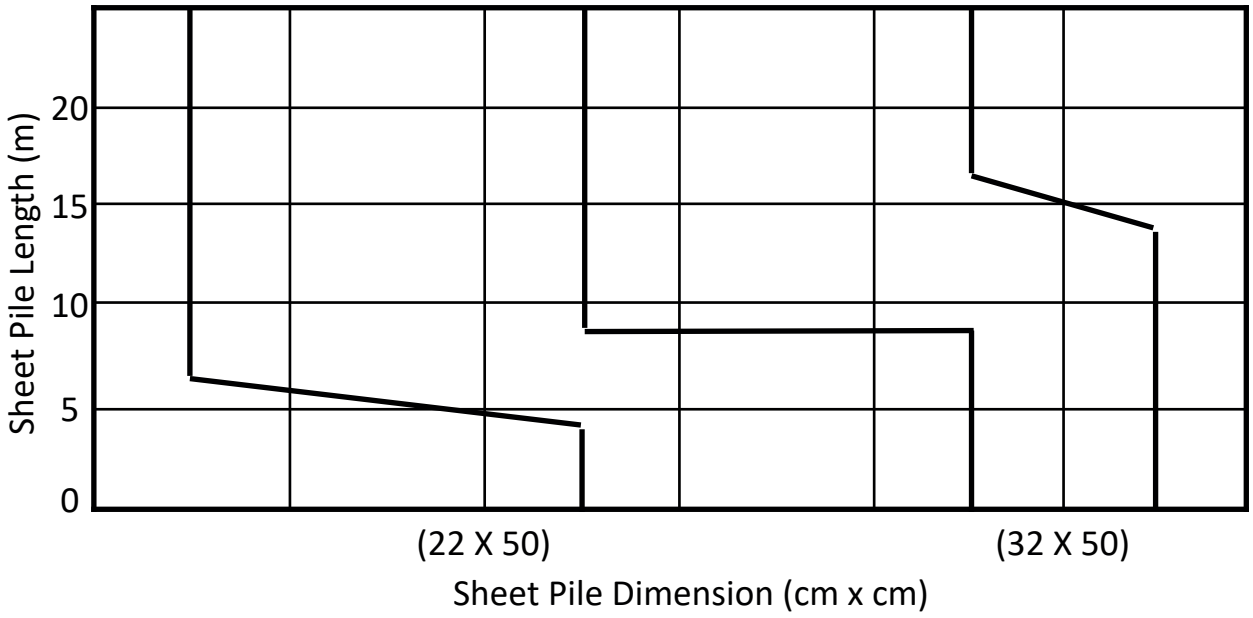
FCSP

Type	Width W (mm)	Thickness t (mm)	Unit Weight (kg/m)	Bending Moment Crack (Ton.m)	Ultimate (Ton.m)	Length L (mm)
FCSP-220 A 500	500	220	280	3,32	5,39	6 - 14
B				3,70	6,74	
C				4,05	8,09	
D				4,39	9,44	
E				4,71	10,79	
F				5,22	10,96	
G				5,97	13,7	
FCSP-320 A 500	500	320	400	6,05	7,85	6 - 14
B				6,65	9,81	
C				7,24	11,77	
D				7,81	13,73	
E				8,37	15,59	
F				8,91	17,65	
G				9,43	19,61	
H				9,94	21,57	
I				10,43	23,54	
J				10,91	25,52	
K				11,37	27,46	
L				11,81	29,42	
M				12,24	31,38	
N				13,38	31,88	

FRSP

Type	Width W (mm)	Thickness t (mm)	Unit Weight (kg/m)	Crack Moment (Ton.m)	Length (m)
Concrete Compressive Strength: 350 kg/cm² (Cube); 30 MPa (Cylinder)					
FRSP - 220 A 500	500	220	280	1,45	4 - 10
FRSP - 320 A 500	500	320	400	3,22	4 - 12
Concrete Compressive Strength: 500 kg/cm² (Cube); 42 MPa (Cylinder)					
FRSP - 220 B 500	500	220	280	1,70	4 - 10
FRSP - 320 B 500	500	320	400	3,61	4 - 12

Nomogram For Choosing Type of Diesel Hammer



FCSP & FRSP on Board

FCSP & FRSP on “Normalisasi Kali Ciliwung“ and “Bendung Gerak Sembayat” Project

FCSP & FRSP on Bendung Gerak Sembayat

FCSP & FRSP on Bendung Gerak Sembayat

PC-I GIRDER

DESCRIPTION

Precast beam girder that use “I” shape section, “I” shape section causes beam to have greater Ix (Inertia of x Axis) on same cross sectional area, so beam girder become more efficient on economical. This PC I Girder can be used on bridge for road or railway.

TECHNICAL

Type Of Girder	:	Pc-I Girder
Prestressing System	:	Post-Tension, Pre-Tension
Production System	:	Segmental, Monolith
Erection System	:	Launching Gantry Launching Truss Double Crane Single Crane (Max. 15 M)

DESIGN & MANUFACTURING REFERENCE

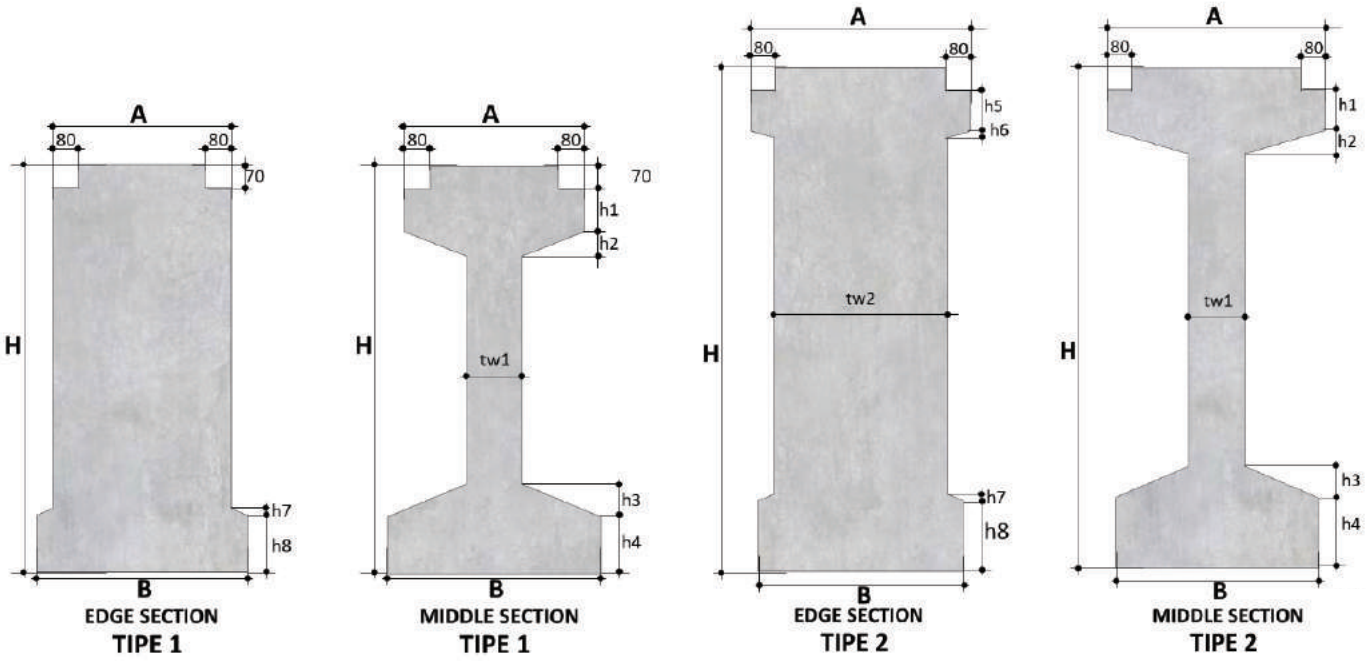
Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland’s Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive strength at 28 day : 500 - 800 kg/cm^2 (Cube); 42 – 65 MPa (Cylinder) depends on beam span	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D >10mm BjTP 24 For D ≤ 10mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
PC Strand	KBjP-P7 RB Grade 270	SNI 1154-2011 ASTM A-416	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7)) (Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete)

Item	Specification	Reference	
	SWPR7BL	JIS G 3536 : 2014	(Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Post Tension System	VLM System DSI System		
Post Tension Grout	Compressive Strength : at 7 Day : 27 MPa at 28 Day : 30 MPa	BS EN 447 : 2007	(Grout for Prestressing Tendon. Basic Requirement)
Pin Connector	S45C C45	JIS G 4051:2009 DIN EN 10083-2:2006-10	(Carbon Steel for Machine Structural) (Steel for Quenching and Tempering)

PRODUCT DIMENSION



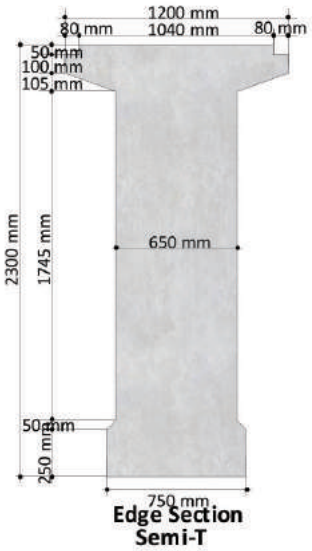
All units in mm

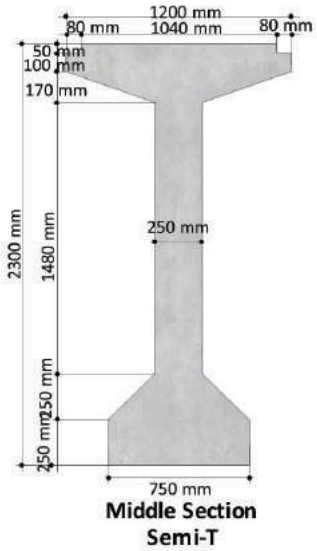
PC-I GIRDER

Notation	Unit (mm)	H (cm) Type 1	Type 2							
		90	125	140	160	170	185	210	230	Semi-T
A	mm	550	550	700	700	800	800	800	850	1200
B	mm	650	650	650	650	700	700	700	750	750
Tw1	mm	170	170	180	180	200	200	200	250	250
Tw2	mm	-	-	550	550	600	600	600	600	650
h1	mm	130	130	130	130	130	130	130	130	100
h2	mm	75	75	75	75	120	120	120	120	170
h3	mm	100	100	100	100	250	250	250	250	250
h4	mm	125	125	225	225	250	250	250	250	250
h5	mm	-	-	130	130	130	130	130	130	100
h6	mm	-	-	22	22	40	40	40	40	105
h7	mm	21	22	21	22	50	50	50	50	50
h8	mm	125	175	225	225	250	250	250	250	250

Typical of girder according to length :

1. Span 16 m, H 90
2. Span 20 m, H 125
3. Span 25 m, H 160
4. Span 30 m, H 170
5. Span 40 m, H 210
6. Span 45 m, H 210, Semi-T
7. Span 50 m, Semi-T





Another Available length

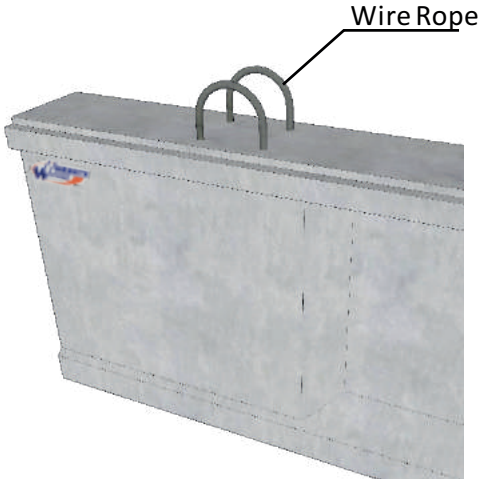
Notation	Unit (mm)	H (cm) Type 1		Type 2						
		90	125	140	160	170	185	210	230	Semi-T
span (K-800)	m	16 to 19	16 to 28	16 to 35	24 to 43	35 to 44	37 to 48	38 to 52	45 to 52	Max 50 m
span (K-500)	m	16 to 18	16 to 24	16 to 28	20 to 33	27 to 40	29 to 42	32 to 45	37 to 48	

Recommended CTC (Center to Center) Spacing : 1,4 m; 1,85 m ; 2,1 m ; 2,4 m
But another CTC Spacing can be Designed

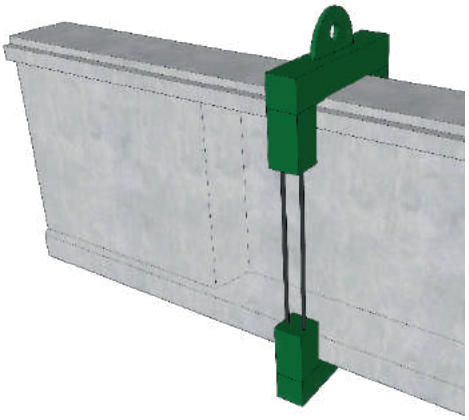
Segmental Connection Detail

Alt. 1 Shear Key
(Match Casting)

Alt. 2 Pin Connector
Typical
(Direct Casting)



Alt. 1 Lifting Loop Anchor



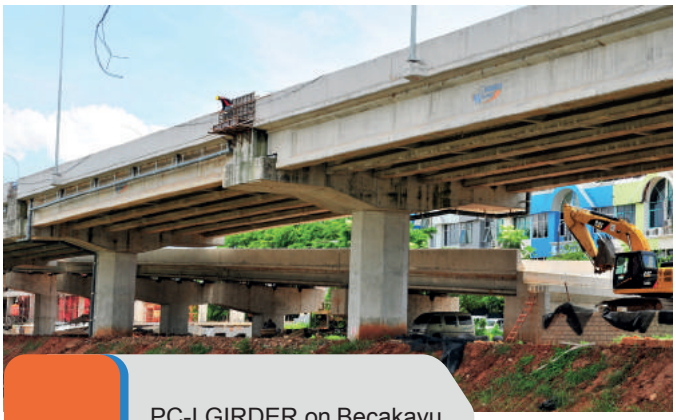
Alt. 2 Steel lifting frame

This system will increase stability while erection process, because turning point positioned above centroid.

PC-I GIRDER

PC-I GIRDER on Board

PC-I GIRDER on CCTW (Cimanggis Cibitung Toll Ways)

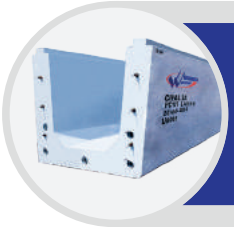


PC-I GIRDER on Becakayu

PC-I GIRDER on LRT Palembang

PC-I GIRDER on Tol Solo Kertosono

PC-I GIRDER on PPTR (Pejagan Pemalang Toll Road)



PC-U GIRDER

WASKITA precast
Dedication for Movement

DESCRIPTION

Precast beam girder that use “U” shape section, “U” shape section causes beam to have greater Iy (Inertia of y Axis) on same cross sectional area, so lateral stability is increased, make erection team more confidence while lifting this product. This PC U Girder can be used on bridge for road or railway.

TECHNICAL

Type Of Girder	:	PC-U Girder
Prestressing System	:	Post-Tension, Pre-Tension
Production System	:	Segmental, Monolith
Erection System	:	Launching Gantry Launching Truss Double Crane Single Crane (Max. 15 M)

DESIGN & MANUFACTURING REFERENCE

Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

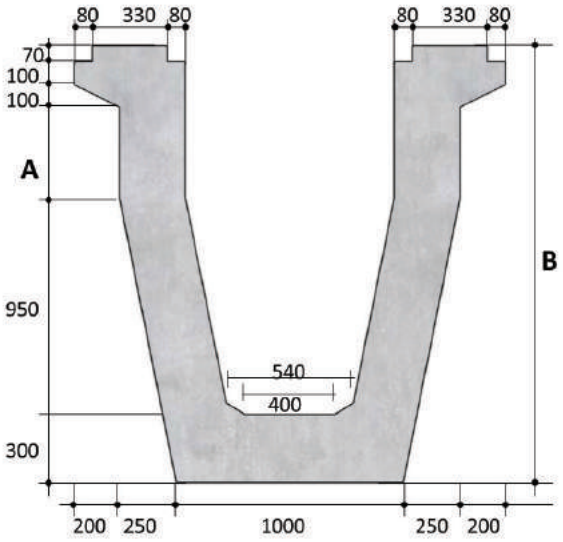
SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland’s Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive strength at 28 day : 500 - 800 kg/cm^2 (Cube), 42 – 65 MPa (Cylinder) depends on beam span	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BJTS 40 For D >10mm BjTP 24 For D ≤ 10mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
PC Strand	KBjP-P7 RB Grade 270 SWPR7BL	SNI 1154-2011 ASTM A-416 JIS G 3536 : 2014	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7)) (Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete) (Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Post Tension System	VLM System DSI System		

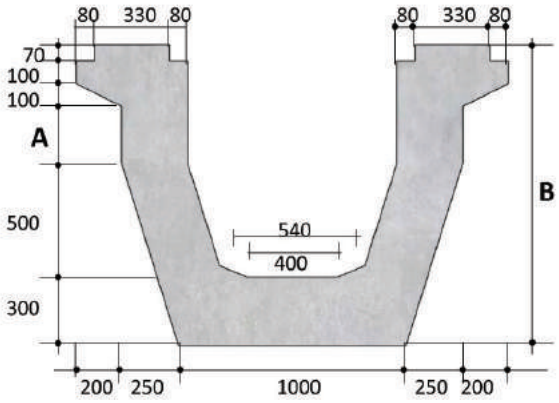
PC-U GIRDER

Item	Specification	Reference	
Post Tension Grout	Compressive Strength : at 7 Day : 27 MPa at 28 Day : 30 MPa	BS EN 447 : 2007	(Grout for Prestressing Tendon. Basic Requirement)
Pin Connector	S45C C45	JIS G 4051:2009 DIN EN 10083-2:2006-10	(Carbon Steel for Machine Structural) (Steel for Quenching and Tempering)

PRODUCT DIMENSION



H > 1400 MM



H > 1400 MM

All units in mm

Type	A (mm)	B (mm)
H-120	130	1200
H-130	230	1300
H-140	330	1400
H-165	130	1650
H-175	230	1750
H-185	330	1850
H-220	680	2200
H-240	880	2400

Typicial of girder according to length
1. Span 20 m, H-120
2. Span 25 m, H-130
3. Span 30 m, H-140
4. Span 32 m, H-165
5. Span 35 m, H-185
6. Span 40 m, H-185
7. Span 50 m, H-220 **(Special Order)**

Recommended CTC Spacing (Center to Center) : 3,1 m
But another CTC Spacing can be accomodated

Another Available length

Type	Span (m) K-500	K-800
H-120	21-25	26-29
H-130	23-27	28-30
H-140	25-29	30-33
H-165	28-34	35
H-175	31-36	37-41
H-185	34-38	39-42
H-220		Up to 50
H-240		Up to 53

PC-U GIRDER on Board

PC-U GIRDER on Cipali Toll Road (Cikopo-Palimanan) Toll Road

PC-U GIRDER on Cikampek Palimanan Toll Road

PC-U GIRDER on Cimanggis Cibitung Tollways

PC-U GIRDER on Poryek Jalan Tol Cisumdawu

PC-U GIRDER on Tol JORR II Paket I Kunciran-Parigi

RC PIPE

DESCRIPTION

Precast channels that have a circular cross section, are generally used as buried water tunnel.

TECHNICAL

Type of Production : Wet cast with high frequency vibration

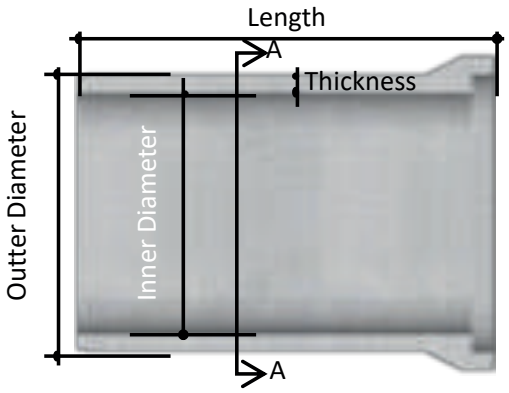
DESIGN & MANUFACTURING REFERENCE

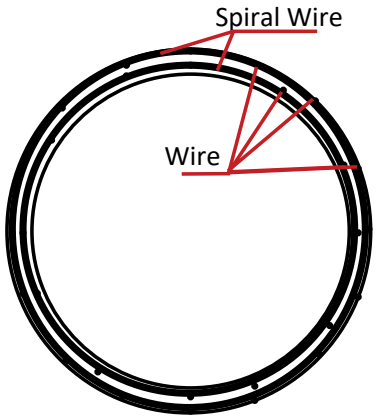
Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

SPECIFICATION OF SOURCE MATERIAL

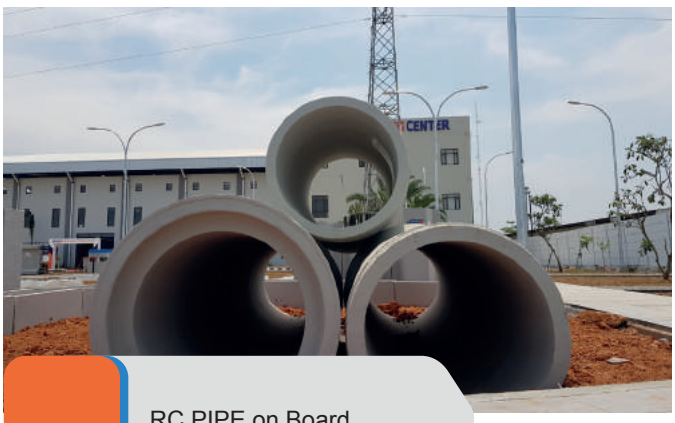
Item	Specification	Reference	
Aggregate		ASTM C33 - 2016	(Standard Specification Concrete Aggregates)
		SNI 8321-2016	(Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 350 kg/cm^2 or 600 kg/cm^2 (Cube), 30 MPa or 50 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Spiral Wire	SWM-P	JIS G 3532 : 2011	(Low Carbon Steel Wires)
Rubber Gasket	Class 2 No. 3B, Class 2 No. 2B	JIS K 6353 - 2011	(Rubber Goods for Water Work)

PRODUCT DIMENSION

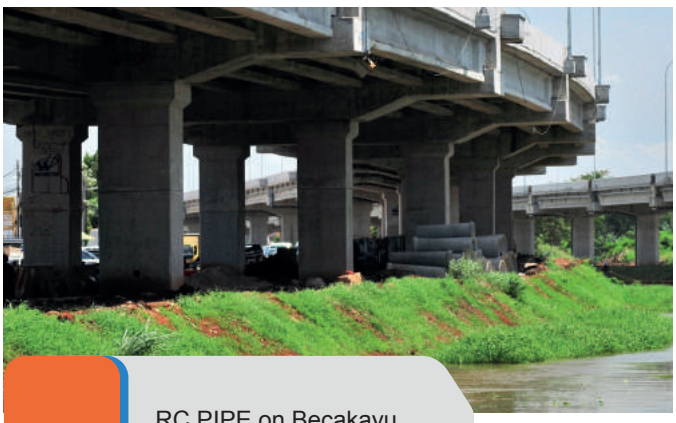




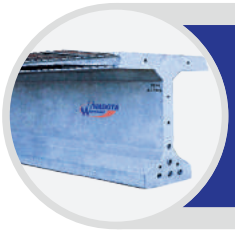
Product Type	Class	Inner Diameter (mm)	Outer Diameter (mm)	Length (mm)	Thickness (mm)	Weight (kg)	Crack Load (kN/m)	Ultimate Load (kN/m)	Hydrostatic Pressure (MPa)
Ø 800	Class-1	800	932	2500	66	1203	35,4	53	-
	Class-2						58,9	93,2	-
	2K						35,4	70,7	0,2
	4K						39,3	78,5	0,4
	6K						44,2	88,3	0,6
Ø 1000	Class-1	1000	1164	2500	82	1894	41,3	61,9	-
	Class-2						68,7	108	-
	2K						41,3	82,5	0,2
	4K						51,1	103	0,4
	6K						-	-	0,6
Ø 1500	Class-1	1500	1724	2500	112	3966	50,1	91,3	-
	Class-2						83,4	134	-
	2K						50,1	101	0,2
	4K						62,8	126	0,4
	6K						-	-	0,6



RC PIPE on Board



RC PIPE on Becakayu



PC-T GIRDER

DESCRIPTION

Precast beam girder that use “T” shape section, “T” shape section causes beam to have greater Iy (Inertia of y Axis) on same cross sectional area, so lateral stability is increased, make erection team more confidence while lifting this product. This PC T Girder can be used on bridge for road or railway.

TECHNICAL

Type Of Girder	:	Pc-I Girder
Prestressing System	:	Post-Tension, Pre-Tension
Production System	:	Segmental, Monolith
Erection System	:	Launching Gantry
		Launching Truss
		Double Crane
		Single Crane (Max. 15 M)

DESIGN & MANUFACTURING REFERENCE

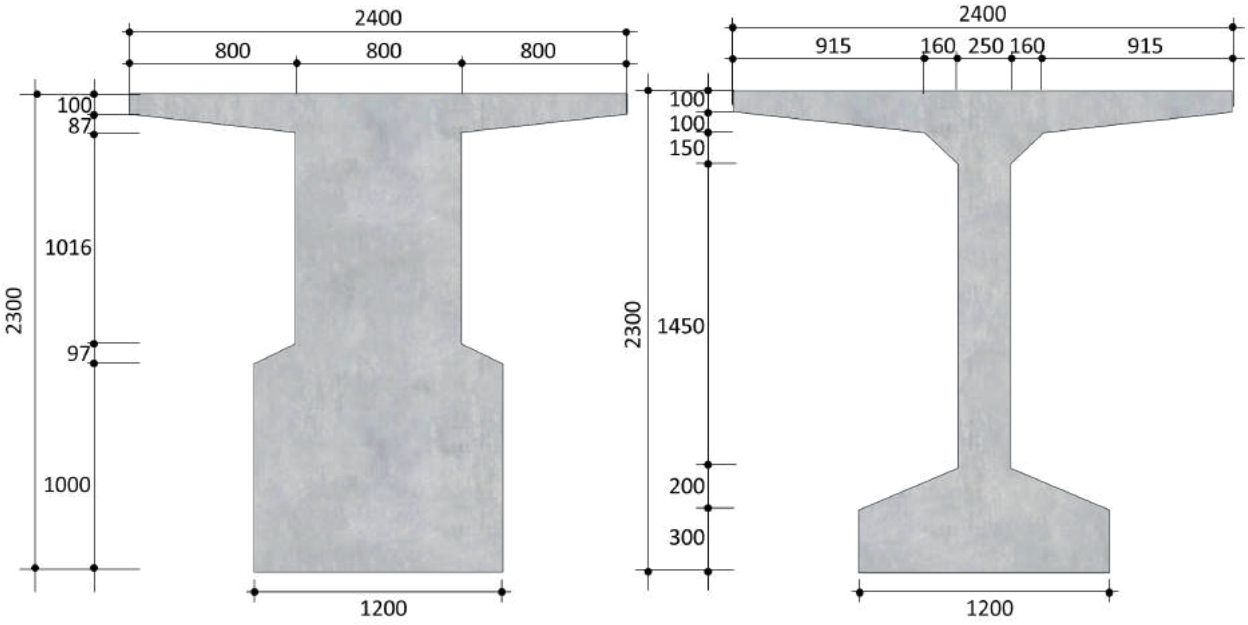
Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016	(Standard Specification Concrete Aggregates)
		SNI 8321-2016	Concrete Aggregate Specification
Cement		SNI 15-2049-2004	(Portland’s Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive strength at 28 day : 800 kg/cm2 (Cube), 65 MPa (Cylinder) depends on beam span	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BJTS 40 For D >10mm BjTP 24 For D ≤ 10mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
PC Strand	KBjP-P7 RB	SNI 1154-2011	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7))
	Grade 270	ASTM A-416	(Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete)
	SWPR7BL	JIS G 3536 : 2014	(Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)

Item	Specification	Reference	
Post Tension System	VLM System DSI System		
Post Tension Grout	Compressive Strength : at 7 Day : 27 MPa at 28 Day : 30 MPa	BS EN 447 : 2007	(Grout for Prestressing Tendon. Basic Requirement)
Pin Connector	S45C C45	JIS G 4051:2009 DIN EN 10083-2:2006-10	(Carbon Steel for Machine Structural) (Steel for Quenching and Tempering)

PRODUCT DIMENSION



All units in mm

Recommended Specification :
Span : 50 – 60 m
CTC (Center to Center) Spacing : 2,5 m

PC-T GIRDER

PC-T GIRDER on Board

PC-T GIRDER on Cikampek Palimanan Toll Road

PC-T GIRDER on Cikampek Palimanan Toll Road

BOX GIRDER

Dedication for Movement

DESCRIPTION

Segmental beam product that has a hollow cross section in the middle. The purpose of this hollow cross section is for efficiency. The advantage of the box girder is that isn't necessary to cast a deck. So that after the erection, it can proceed to the stage of pavement work or the installation of railroad tracks.

TECHNICAL

Prestressing System	:	Post-Tension
Production System	:	Long Line
		Match Case
Erection Method	:	Span by Span
		Balance Cantilever

DESIGN & MANUFACTURING REFERENCE

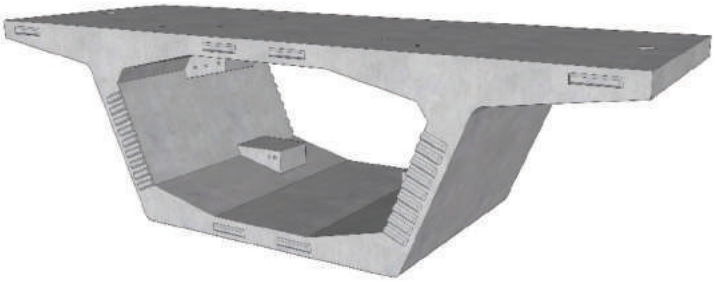
Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

SPECIFICATION OF SOURCE MATERIAL

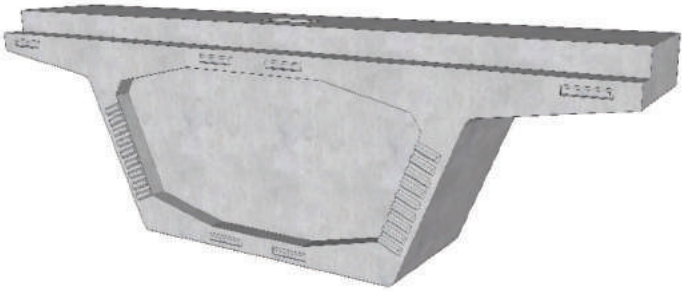
Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive strength at 28 day : 600 kg/cm^2 (Cube), 50 Mpa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D >10mm BjTP 24 For D ≤ 10mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
PC Strand	KBjP-P7 RB Grade 270 SWPR7BL	SNI 1154-2011 ASTM A-416 JIS G 3536 : 2014	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7)) (Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete) (Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Post Tension System	VLM System DSI System		
Post Tension Grout	Compressive Strength : at 7 Day : 27 MPa at 28 Day : 30 MPa	BS EN 447 : 2007	(Grout for Prestressing Tendon. Basic Requirement)

BOX GIRDER

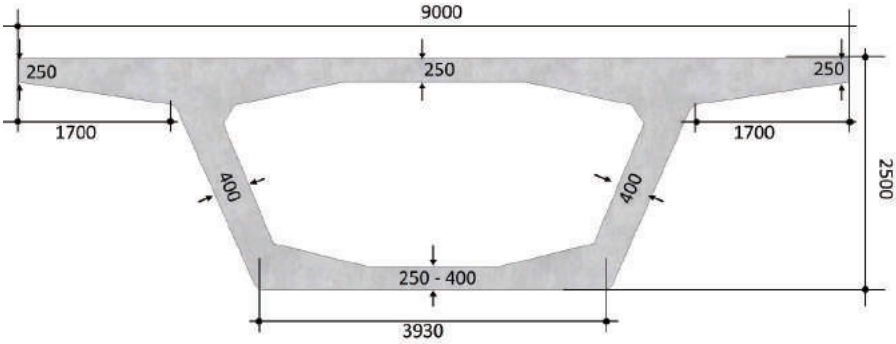
PRODUCT DIMENSION



Typical Segment



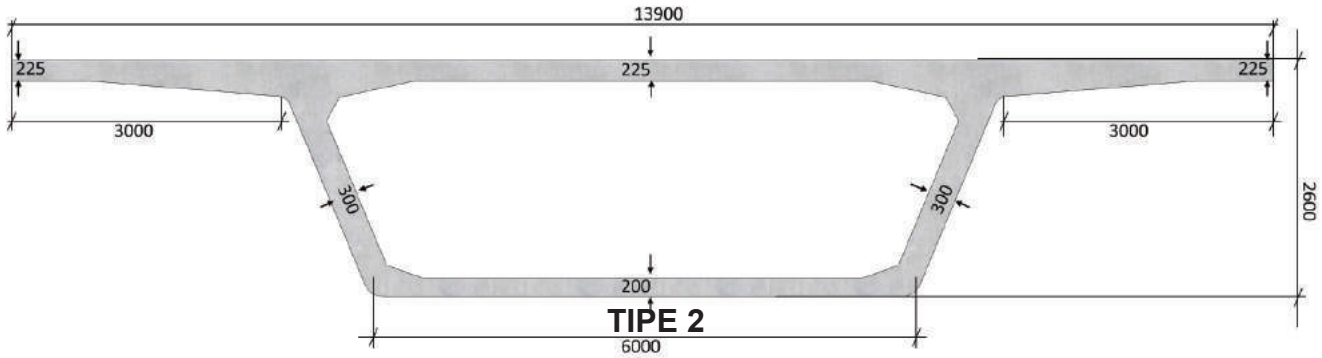
Pier Segment



TIPE 1

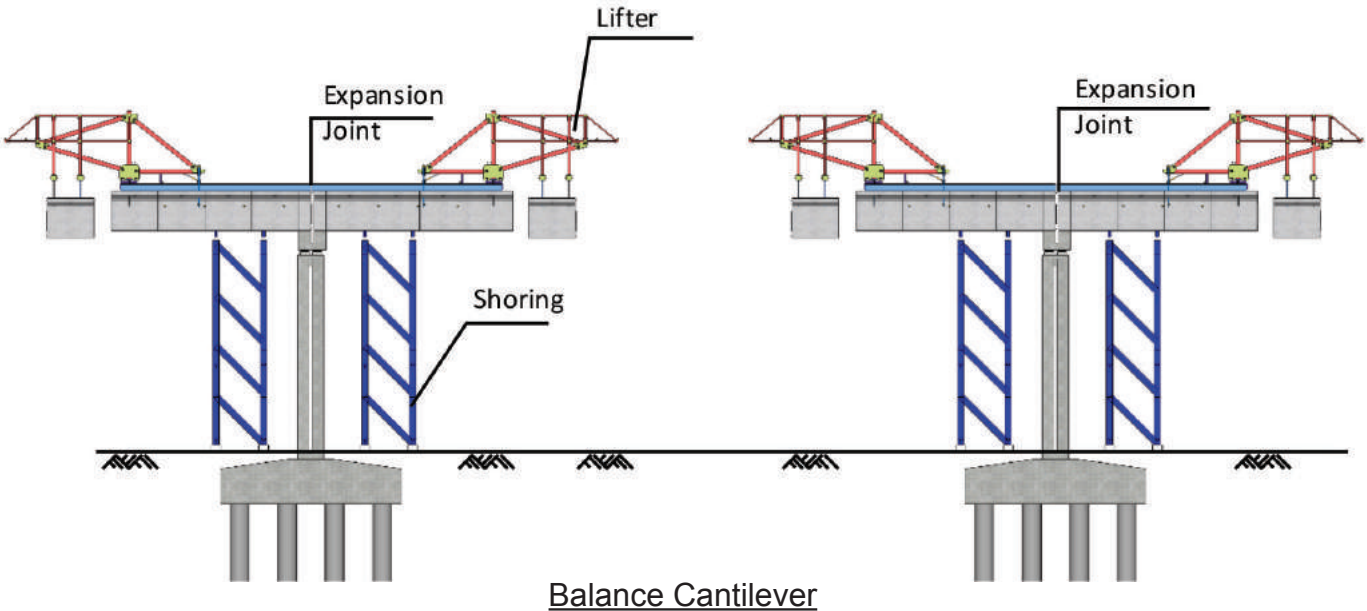
Dimension can be modified based on user needs.

All units in mm

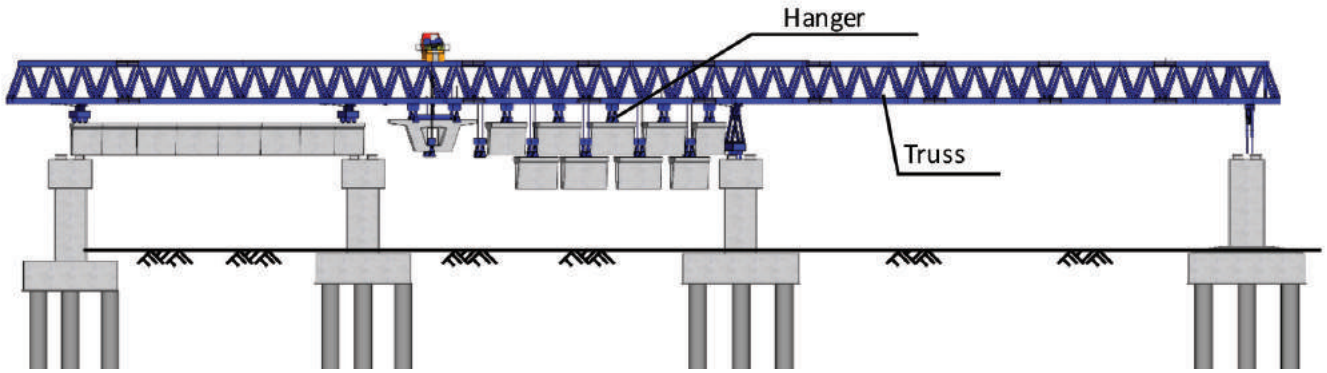


TIPE 2

ERECTION METHOD

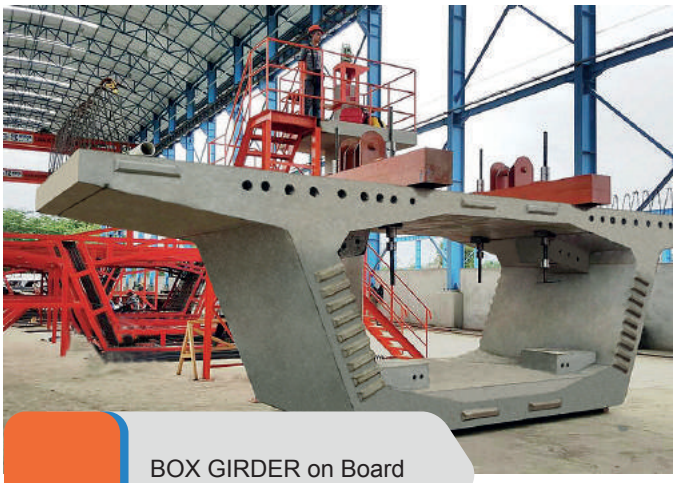


Balance Cantilever

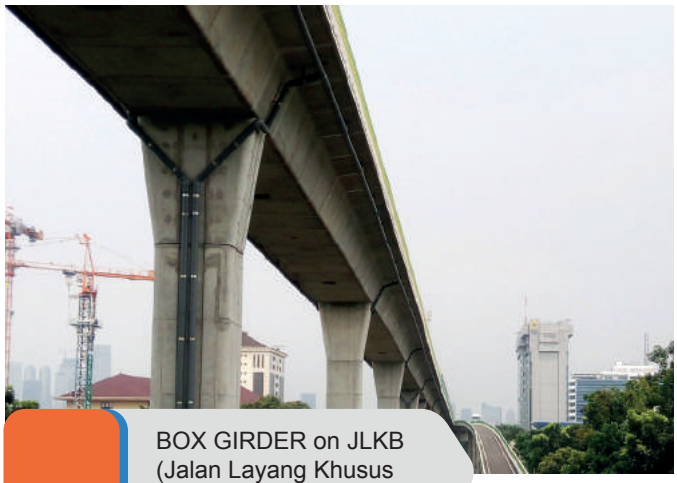


Span by Span

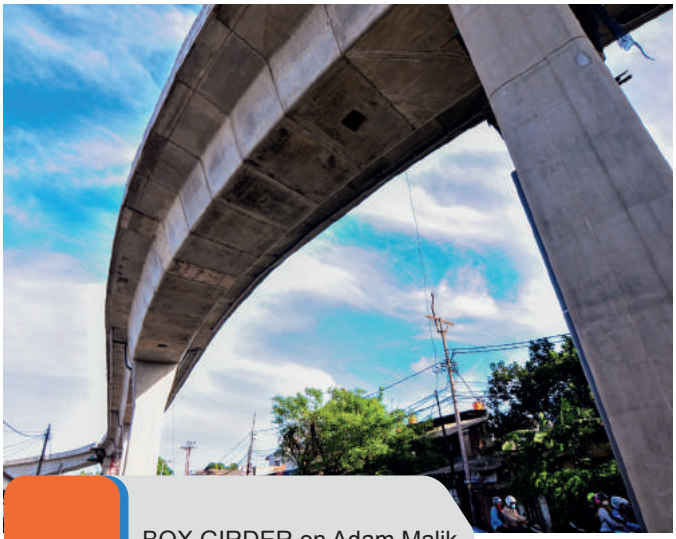
BOX GIRDER



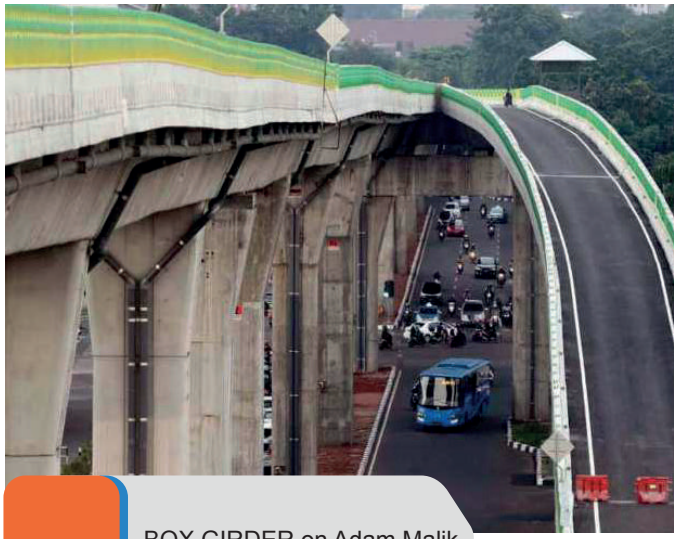
BOX GIRDER on Board



BOX GIRDER on JLKB (Jalan Layang Khusus Busway) Ciledug



BOX GIRDER on Adam Malik



BOX GIRDER on Adam Malik

U – DITCH & COVER

Dedication for Movement

DESCRIPTION

Precast channels that have a rectanguler cross section, are generally used as drainage channel on the road edge. Product is able to loaded with vertical load but not for very heavy loads (Like truck, or train)

TECHNICAL

Type of Production : Wet cast with high frequency vibration

DESIGN & MANUFACTURING REFERENCE

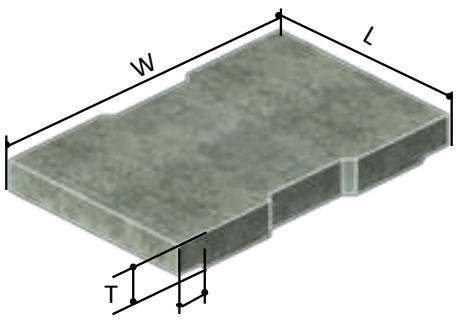
Design	SNI 03-2847-2013	Indonesian Concrete Code

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive strength at 28 day : 600 kg/cm^2 (Cube), 50 Mpa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D >10mm BjTP 24 For D ≤ 10mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
PC Strand	KBjP-P7 RB Grade 270 SWPR7BL	SNI 1154-2011 ASTM A-416 JIS G 3536 : 2014	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7)) (Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete) (Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)

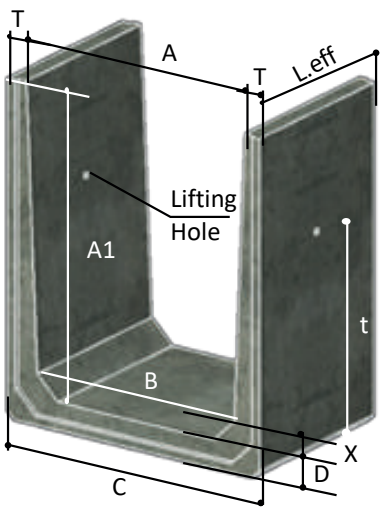
PRODUCT DIMENSION

Cover U-Ditch



R

U-Ditch



U – DITCH & COVER

Dimensi U-Ditch	Type	Dimensi Cover U-Ditch			
		Tebal T (mm)	Lebar W (mm)	Panjang L (mm)	Coakan R (mm)
U 300	A	102	390	600	55
	B	75	390	600	55
U 400	A	122	500	600	57
	B	90	500	600	57
U 500	A	132	640	600	78
	B	90	640	600	78
U 600	A	142	740	600	78
	B	100	740	600	78
U 800	A	152	940	600	78
	B	100	940	600	78
U 1000	A	152	1180	600	106
	B	120	1180	600	106
U 1200	A	152	1390	600	117
	B	120	1390	600	117
U 1400	A	180	1620	600	130
	B	150	1620	600	130
U 1600	A	200	1840	600	140
	B	180	1840	600	140

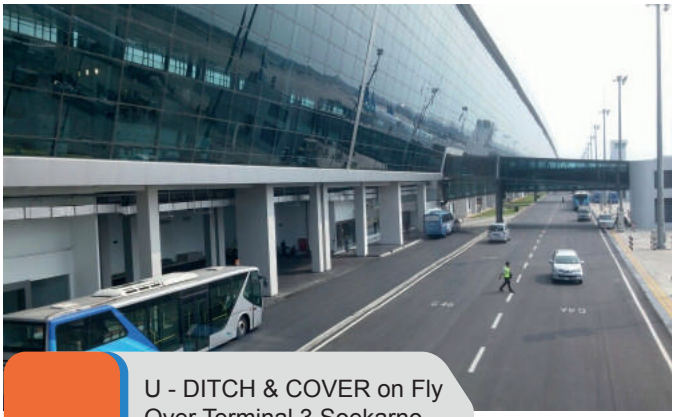
Note : A=For heavy load (Max. Axle load : 10 Ton), B=for light load (Max. Axle load : 5 Ton)

(A x A1 x L. Eff) (mm)	Type	A (mm)	A1 (mm)	B (mm)	C (mm)	D (mm)	T (mm)	L. eff (mm)	x (mm)	weight (kg)
300 x 200 x 1200	A	287	200	280	390	60	52	1200	40	138
300 x 300 x 1200	B	291	300	280	390	60	49	1200	40	168
300 x 300 x 1200	C	296	400	280	390	60	47	1200	40	197
300 x 400 x 1200	D	300	500	280	390	60	45	1200	40	224
400 x 300 x 1200	A	394	300	390	500	70	53	1200	70	215
400 x 400 x 1200	B	396	400	390	500	70	52	1200	70	247
400 x 500 x 1200	C	398	500	390	500	70	51	1200	70	278
400 x 600 x 1200	D	400	600	390	500	70	50	1200	70	308
500 x 300 x1200	A	492	300	488	640	70	74	1200	70	283
500 x 400 x 1200	B	494	400	488	640	70	73	1200	70	327
500 x 500 x 1200	C	496	500	488	640	70	72	1200	70	370
500 x 600 x 1200	D	498	600	488	640	70	71	1200	70	413
500 x 700 x 1200	E	500	700	488	640	70	70	1200	70	455
600 x 400 x 1200	A	592	400	586	740	70	74	1200	70	350
600 x 500 x 1200	B	594	500	586	740	70	73	1200	70	394
600 x 600 x 1200	C	596	600	586	740	70	72	1200	70	438
600 x 700 x 1200	D	598	700	586	740	70	71	1200	70	480
600 x 800 x 1200	E	600	800	586	740	70	70	1200	70	523
800 x 600 x 1200	A	792	600	780	940	100	74	1200	70	574
800 x 700 x 1200	B	794	700	780	940	100	73	1200	70	618
800 x 800 x 1200	C	796	800	780	940	100	72	1200	70	661
800 x 1000 x 1200	D1	800	1000	780	940	100	70	1200	70	747
800 x 1000 x 1200	D2	800	1000	770	1000	100	100	1200	100	978
800 x 1200 x 1200	E	800	1200	780	940	100	70	1200	70	837
1000 x 650 x 1200	A	1000	650	980	1180	110	90	1200	70	741
1000 x 800 x 1200	B	978	800	940	1180	110	101	1200	100	955
1000 x 1000 x 1200	C1	1000	1000	940	1180	110	90	1200	100	1059
1000 x 1000 x 1200	C2	1000	1000	970	1200	100	100	1200	100	1038

(A x A1 x L. Eff) (mm)	Type	A (mm)	A1 (mm)	B (mm)	C (mm)	D (mm)	T (mm)	L. eff (mm)	x (mm)	weight (kg)
1000 x 1200 x 1200	D	1000	1200	940	1180	110	90	1200	100	1185
1000 x 1400 x 1200	E	1000	1400	940	1180	110	90	1200	100	1309
1200 x 1000 x 1200	A	1165	1000	1090	1390	130	112	1200	100	1369
1200 x 1200 x 1200	B	1200	1200	1090	1390	130	95	1200	100	1469
1200 x 1400 x 1200	C	1200	1400	1090	1390	130	95	1200	100	1616
1200 x 1600 x 1200	D	1200	1600	1090	1390	130	95	1200	100	1753
1400 x 1200 x 1200	A	1336	1200	1220	1600	150	132	1200	120	1941
1400 x 1400 x 1200	B	1357	1400	1220	1600	150	121	1200	120	2094
1400 x 1600 x 1200	C	1379	1600	1220	1600	150	111	1200	120	2234
1400 x 1800 x 1200	D	1400	1800	1220	1600	150	100	1200	120	2360
1600 x 1400 x 1200	A	1548	1400	1440	1840	170	146	1200	150	2500
1600 x 1600 x 1200	B	1565	1600	1440	1840	170	137	1200	150	2650
1600 x 1800 x 1200	C	1583	1800	1440	1840	170	129	1200	150	2810
1600 x 2000 x 1200	D	1600	2000	1440	1840	170	120	1200	150	2960

U - DITCH & COVER on Board

U - DITCH & COVER on Fly Over & Ground Road Terminal 3 Soekarno-Hatta Airport



U - DITCH & COVER on Fly Over Terminal 3 Soekarno Hatta

U - DITCH & COVER on Tol Becakayu

BOX CULVERT

DESCRIPTION

Precast channels that have a rectanguler cross section, are generally used as crossing channel on the road or water tunnel but can be used too as a drainage channel on road edge. Product is able to loaded with vertical load such as vehicle load

TECHNICAL

Type of Production : Wet cast with high frequency vibration

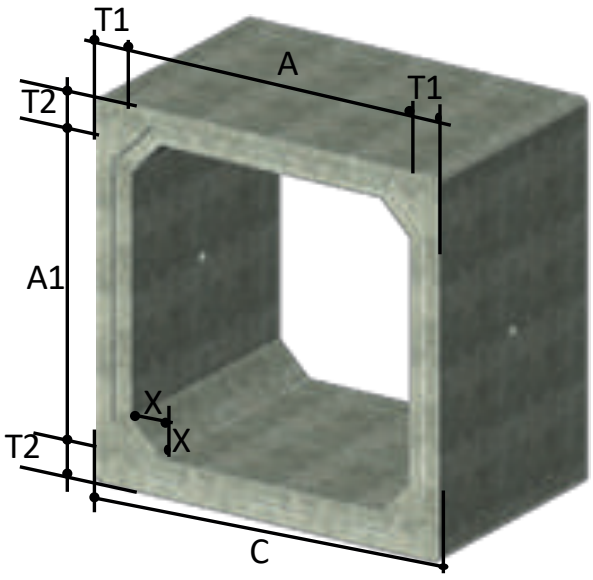
DESIGN & MANUFACTURING REFERENCE

Design	SNI 03-2847-2013	Indonesian Concrete Code

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 350 kg/cm2(Cube), 30 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

PRODUCT DIMENSION



Size Wide x Depth x Length	Type	Dimension							Approx. Weight (kg)
		A1 (mm)	A (mm)	T1 (mm)	T2 (mm)	C (mm)	L (mm)	X (mm)	
400 x 400 x 1200	BC 400	400	400	85	85	570	1200	80	515
500 x 600 x 1200	BC 500	500	500	90	90	680	1200	85	665
600 x 600 x 1200	BC 600	600	600	95	95	790	1200	90	860
800 x 800 x 1200	BC 800	800	800	110	110	1020	1200	105	1285
1000 x 1000 x 1200	BC 1000 A	1000	1000	125	125	1250	1200	120	1760
1000 x 1500 x 1200	BC 1000 B	1000	1500	170	170	1340	1200	150	2558
1000 x 2000 x 1200	BC 1000 C	1000	2000	180	180	1360	1200	170	3185
1200 x 1200 x1200	BC 1200	1200	1200	142	142	1484	1200	140	2430
1500 x 1500 x 1200	BC 1500	1500	1500	165	165	1784	1200	160	3600
2000 x 1000 x 1200	BC 2000 A	2000	1000	180	180	2360	1200	170	4025
2000 x 1500 x 1200	BC 2000 B	2000	1500	200	200	2400	1200	190	4818
2000 x 2000 x 1200	BC 2000 C	2000	2000	210	210	2420	1200	200	5775
2000 x 2500 x 1200	BC 2000 D	2000	2500	230	230	2460	1200	210	6865
2000 x 3000 x 1200	BC 2000 E	2000	3000	250	250	2500	1200	230	8175
3000 x 3000 x 1200	BC 3000	3000	3000	300	350	3700	1200	200	13400
4000 x 4000 x 1200	BC 4000	4000	4000	400	400	4800	1200	300	21900

BOX CULVERT on Board

Box Culvert on Becakayu Toll Road (Bekasi-Cawang-Kampung Melayu)

FULL SLAB

DESCRIPTION

Precast Slab Pretesnsion prodct used in the pile slab structure as main road or ramp. Full slab is easy to install. This product is solution for constructing road on poor soil conditions.

TECHNICAL

Prestressing System	:	Pre-tension
Erection Method	:	Single Crane
		Double Crane
		Launching Gantry
		Launching Truss

DESIGN & MANUFACTURING REFERENCE

Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
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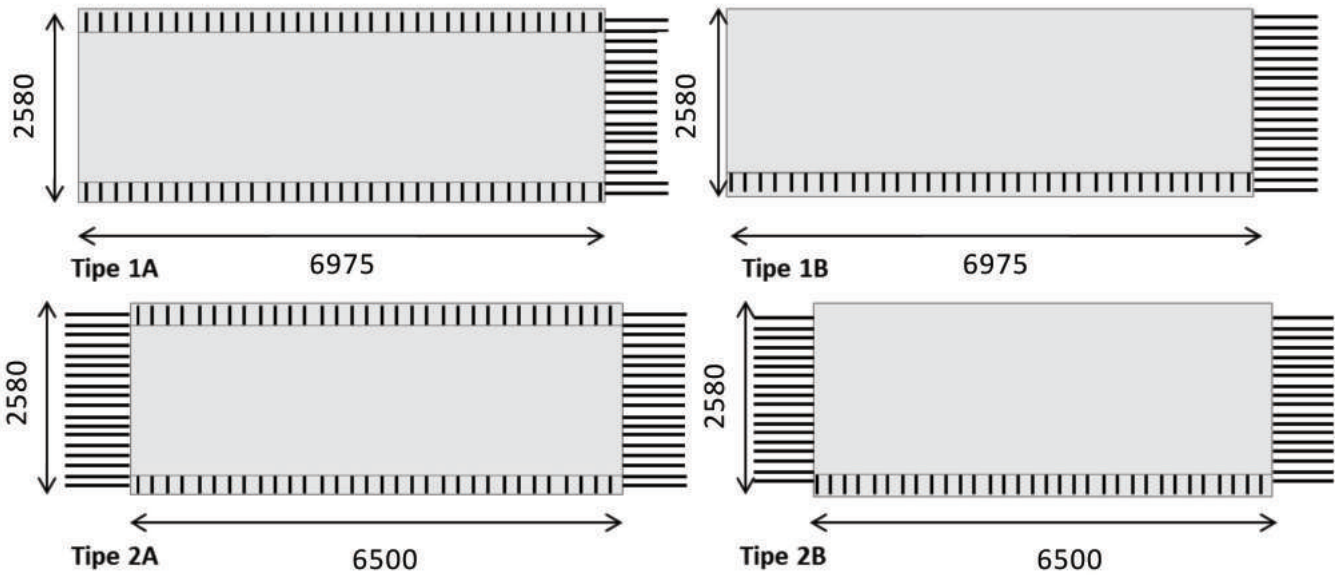
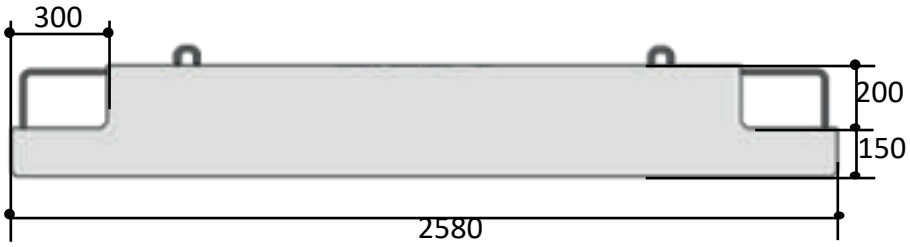
		SNI 8321-2016	(Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 500 kg/cm^2 (Cube); 42 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Strand	KBjP-P7 RB	SNI 1154-2011	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7))
	Grade 270	ASTM A-416	(Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete)
	SWPR7BL	JIS G 3536 : 2014	(Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

PRODUCT DIMENSION

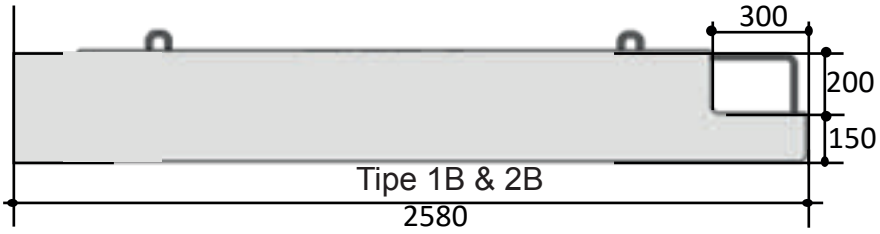


All units in mm

*) width and length can be adjusted based on user needs



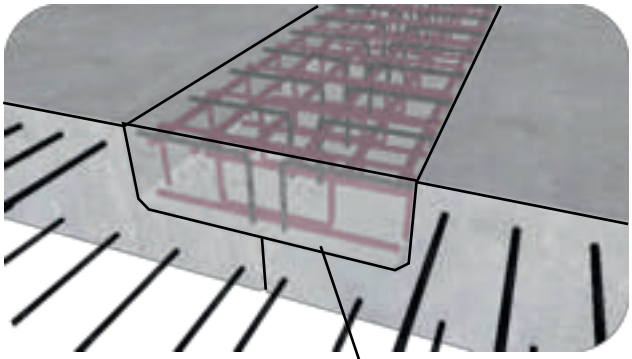
Tipe 1A & 2A



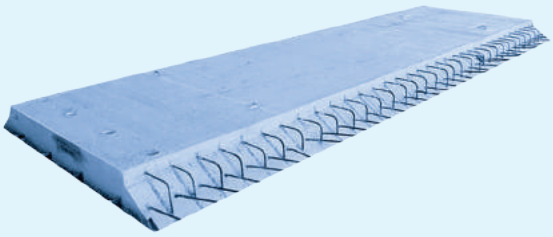
All units in mm

FULL SLAB

Connection System



Cast in Situ
Non Shrinkage Concrete
K500 (Cube) or 42 MPa (Cylinder)



FULL SLAB on Board

FULL SLAB on KLBM Toll Project

FULL SLAB on Tol Gempol Pasuruan

HALF SLAB

Dedication for Movement

DESCRIPTION

Reinforced slab products that have function as semi-finished slabs (topping is required on the half slab surface). Making slab works more practical and time efficient and less supporting tools.

TECHNICAL

DESIGN & MANUFACTURING REFERENCE

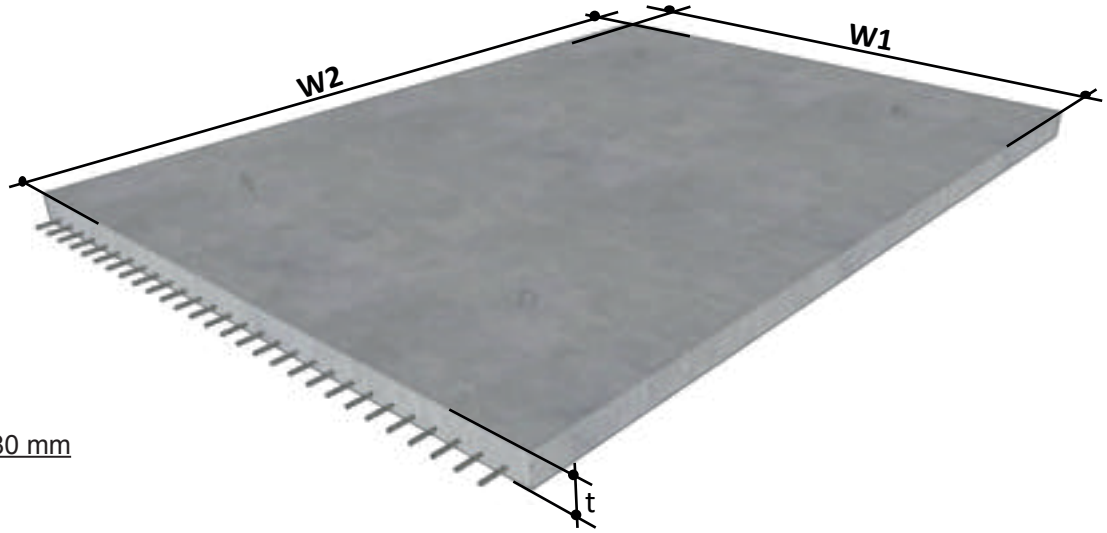
Design	SNI 03-2847-2013	Indonesian Concrete Code

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 350 kg/ cm2(Cube) ; 30 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

HALF SLAB

PRODUCT DIMENSION



t = min. 80 mm

W1 & W2 dimensions determined based on floor plan of the building, and lifting equipment available at site

HALF SLAB on Board

SPRIG WP

Dedication for Movement

DESIGN & MANUFACTURING REFERENCE

Design	No. 038/TBM/1997	Tata Cara Perencanaan Geometrik Jalan Antar Kota
	No. 007/BM/2009	Geometri Jalan Bebas Hambatan untuk Jalan Tol
	SE No : 15/SE/M/2015	Pedoman Pelaksanaan Perkerasan Beton Semen Pracetak-Prategang
	SNI 03-2847-2013	Indonesia Concrete Code

SPECIFICATION OF SOURCE MATERIAL

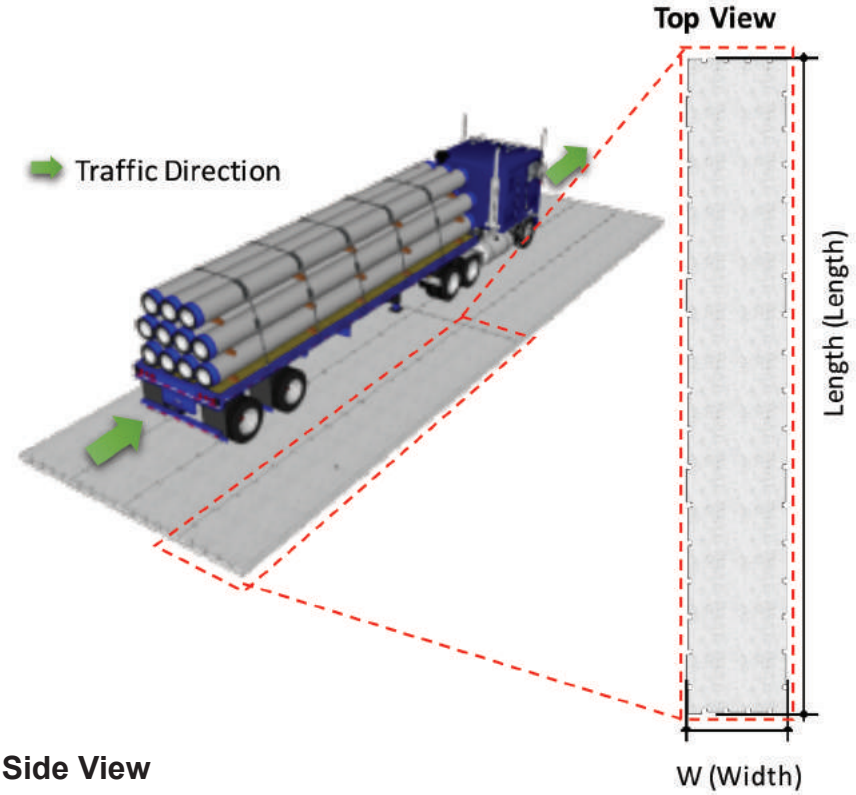
Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for chemical admixture for concrete)
Concrete	Compressive Strength at : 28 Days : 500 kg/cm^2 (Cube), 42 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Strand	KBjP-P7 RB	SNI 1154-2011	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/ KBjP-P7))
	Grade 270	ASTM A-416	(Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete)
	SWPR7BL	JIS G 3536 : 2014	(Uncoated Stress-Relieved steel wires and strands for prestressed concrete)
Reinforced Rebar	BJjS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

SPRIG WP on Board

SPRIG WP on Plant Legundi

SPRIG WP

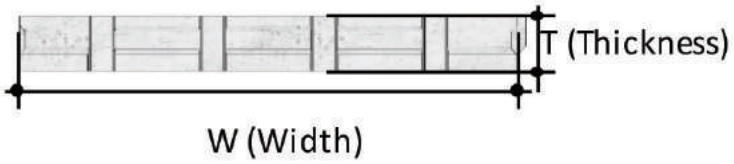
PRODUCT DIMENSION



W (mm)	L (mm)
1800	12000
3600	12000

Available in 2 thicknes :
180 mm & 200 mm

Side View



TECHNICAL

Designed for : Class 1 Road (Max. Axle Load : 10 Ton) & Highway

ADVANTAGE

1. Easier to replace because of single panel prestressing system
2. Easy to install

SPRIG WP on Margomulyo Road, Surabaya

VOIDED SLAB

Dedication for Movement

DESCRIPTION

Precast Concrete Pretensions that have function as short span bridges (span max 17 m). Void in the slab makes bridge structure lighter and more efficient.

TECHNICAL

Prestressing System	:	Pre-Tension
Erection Method	:	Single Crane
		Double Crane
		Launching Gantry
		Launching Truss

DESIGN & MANUFACTURING REFERENCE

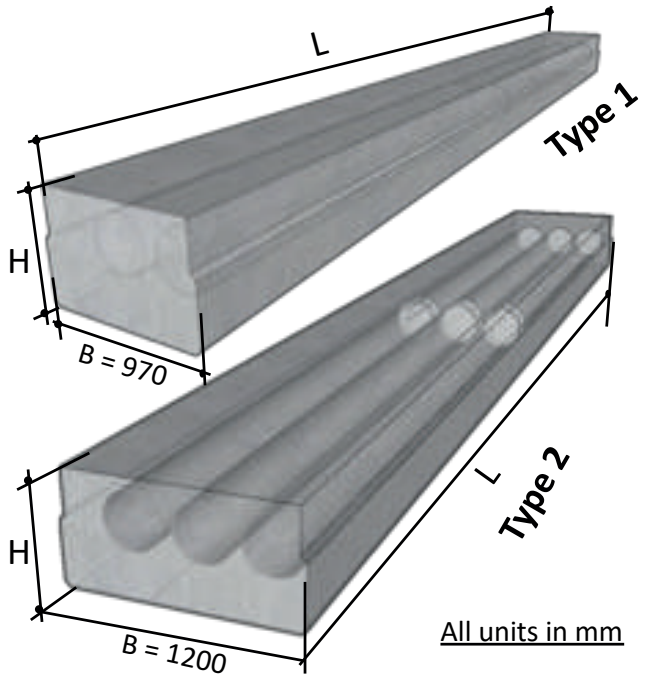
Design	RSNI T-02-2005	Standar Pembebanan untuk Jembatan
	BMS 7	Bridge Design Code
	AASHTO - 2002	Standard Specification for Highway Bridge
	ACI 318-2011	Building Code Requirement for Structural Concreter
	SNI 03-2847-2013	Indonesian Concrete Code
	PCI Mnl-133	Bridge Design Manual

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 500 - 800 kg/cm^2 (Cube); 42 – 70 MPa (Cylinder	SNI 2847-2013	(Structural Concrete Requirement)
PC Strand	KBjP-P7 RB Grade 270 SWPR7BL	SNI 1154-2011 ASTM A-416 JIS G 3536 : 2014	(Uncoated Seven Wire Stress Relieved Strandard for Prestress Concrete (Pc Strand/KBjP-P7)) (Standard Specification for Uncoated Seven_Wire Stress Relieved Srand for Prestressed Concrete) ((Uncoated Stress-Relieved Steel Wires and Strands for Prestressed Concrete)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

VOIDED SLAB

PRODUCT DIMENSION



All units in mm

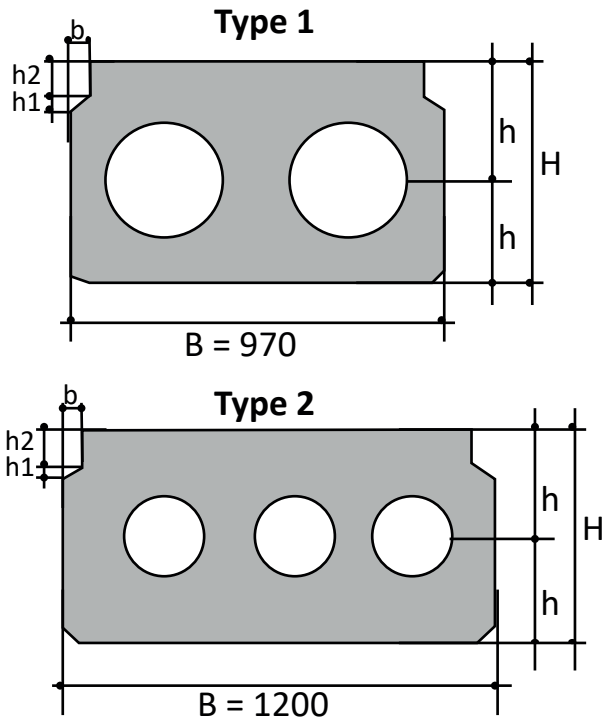
TIPE 1

Height-H (cm)	Span-L (m) K-500	K-800
H-57	5 - 14	15
H-62	5 - 15	16
H-66	5 - 16	17

TIPE 2

Height-H (cm)	Span-L (m) K-500	K-800
H-52,5	5 - 11	12
H-62,5	5 - 14	15 - 17

TYPICAL CROSS SECTION



All units in mm

Notation	Unit	H (mm)				
		Tipe 1 570	620	660	Tipe 2 525	625
B	mm	970	970	970	1200	1200
h	mm	285	310	330	262,5	312,5
h1	mm	25	25	25	25	25
h2	mm	75	100	120	75	100
b	mm	50	50	50	50	50
D	mm	250	300	350	250	300

VOIDED SLAB on Board

VOIDED SLAB on Batang-Semarang Toll Road

VOIDED SLAB on Underpass Simpang Patal, Palembang

VOIDED SLAB on Dermaga Krakatau Dermaga Samudera

BEAM-COLUMN PRECAST

DESCRIPTION

This precast building beam and column systems are more practical to do, don't need a lot of formwork and falsework, so installation time be quicker. Beam-column connection system equipped with prestress component, so the building is more ductile when facing earthquake loads.

TECHNICAL

Type of Connection : Wet Joint with Unbounded Post Tension System

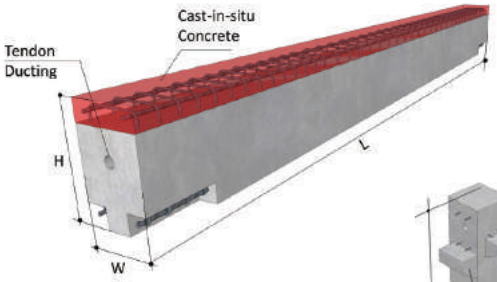
DESIGN & MANUFACTURING REFERENCE

Design	SNI 03-2847-2013	Indonesian Concrete Code
	SNI 7833-2012	Tata Cara Perancangan Beton Pracetak & Beton Prategang untuk Bangunan Gedung

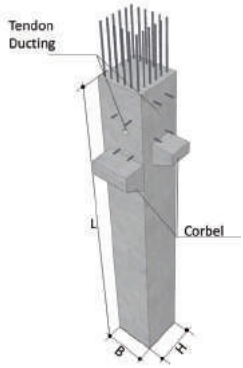
SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 350 kg/ cm2(Cube); 30 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

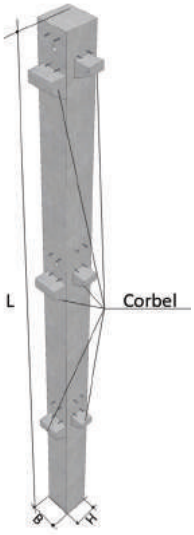
PRODUCT DIMENSION



Balok Precast

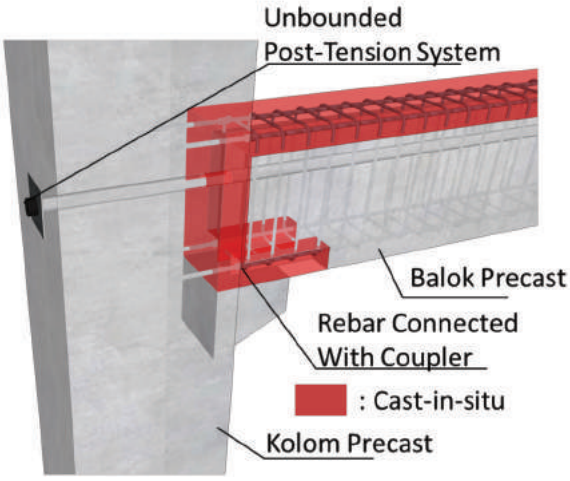


Kolom Precast Single



Kolom Precast Continuous

Connection System



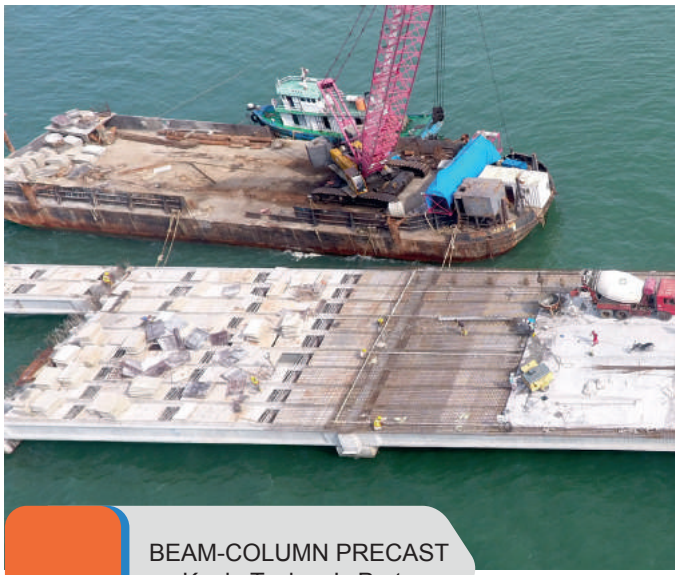
Dimension :

Beam : Beam Width & Height depends on user preference, **Beam length 3-12 m**

Column : Column can be produced as single column, and continuous column. **Length for single column between 3 – 5 m, and maximum length of continuous columns 12 m**

BEAM-COLUMN
PRECAST on Board

BEAM-COLUMN PRECAST
on Learning Center



BEAM-COLUMN PRECAST
on Kuala Tanjung's Port

BEAM-COLUMN PRECAST
on Learning Center

TETRAPOD

DESCRIPTION

Precast concrete that functions as a breakwater and can be used on jetty structure. Has an stability index (Kd) between 6-8

TECHNICAL

Stability Index (Kd) : **6-8**

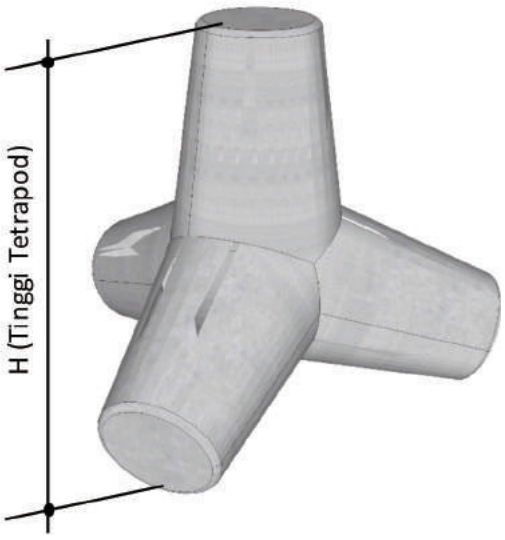
DESIGN & MANUFACTURING REFERENCE

Design	SNI 03-2847-2013	Indonesian Concrete Code

SPECIFICATION OF SOURCE MATERIAL

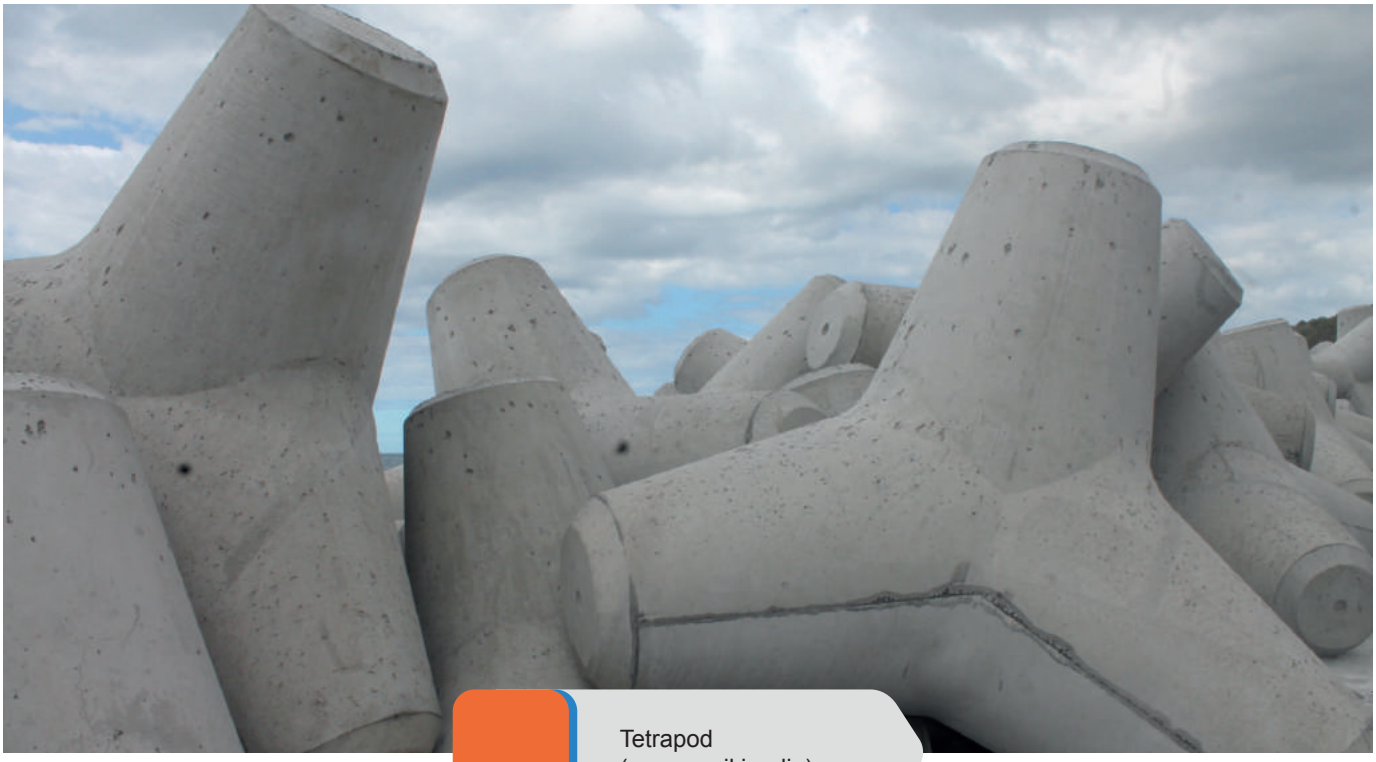
Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 300 kg/cm^2 (Cube); 25 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Spiral Wire Reinforced Rebar	SWM-P BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	JIS G 3532 : 2011 SNI 2052-2014	(Low Carbon Steel Wires) (Concrete Reinforcement Steel Bar)

PRODUCT DIMENSION



Jenis	Volume (m3)	Tinggi Tetrapod (H) (mm)	Berat (ton)
WBP-Tetra 0.25	0,1	710	0,25
WBP-Tetra 0.5	0,2	900	0,5
WBP-Tetra 1	0,4	1130	1
WBP-Tetra 2	0,8	1420	2
WBP-Tetra 4	1,6	1790	4
WBP-Tetra 8	3,2	2260	8
WBP-Tetra 12.5	5	2620	12,5

TETRAPOD on Board



Tetrapod
(source wikipedia)

MOVABLE CONCRETE BARRIER (MCB)

DESCRIPTION

Precast Concrete Barrier which has many functions, it can be used as a road median / road lane separator, and work area fence on the project site. Thanks for its small form, makes it easy to move and install. This product is knock down, so it can be assembled and disassembled according to user needs.

TECHNICAL

Type of Connection : Shear Key

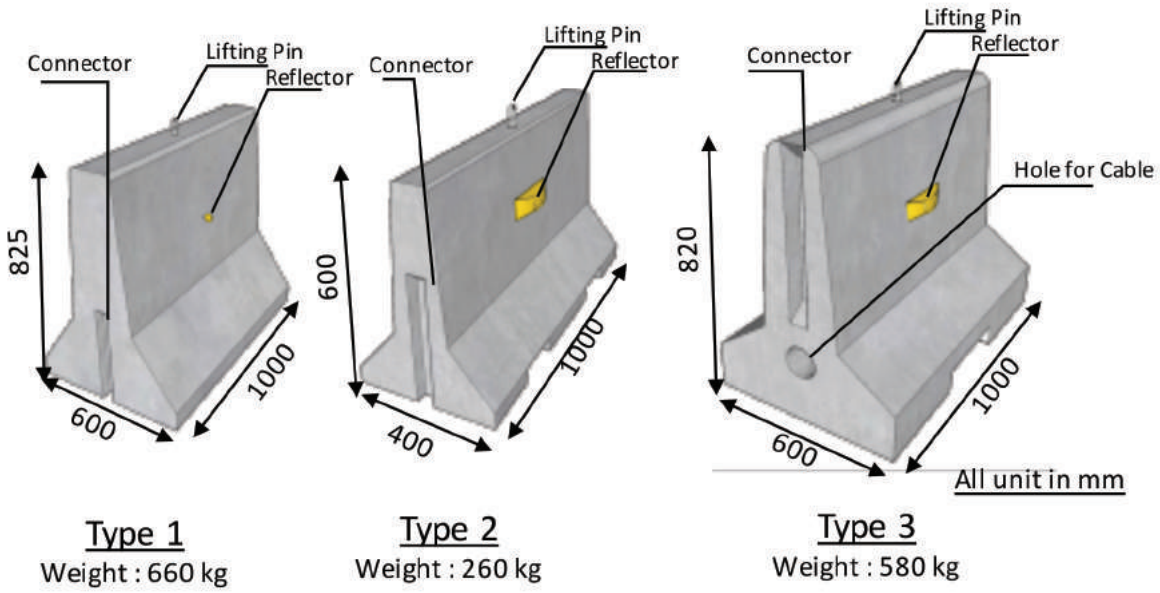
DESIGN & MANUFACTURING REFERENCE

Design	SNI 03-2847-2013	Indonesian Concrete Code

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressive Strength at : 28 Days : 350 kg/cm2(Cube); 30 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

PRODUCT DIMENSION



Dimension can be modified based on user needs.

Movable Concrete Barrier (MCB) on Board

Movable Concrete Barrier (MCB) on Transjakarta Busway, Jakarta

Movable Concrete Barrier (MCB) on Board

Movable Concrete Barrier (MCB) on Board

CONCRETE SLEEPER FOR RAILWAY

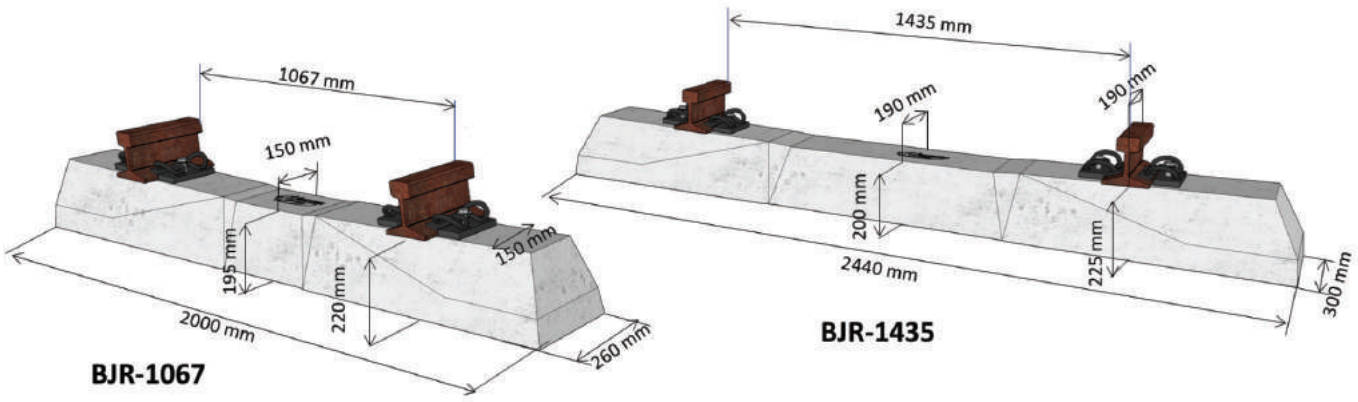
DESIGN & MANUFACTURING REFERENCE

Design	SK.516/KA.604/DRJD/2002	Petunjuk teknis penggunaan bantalan beton
	HK.207/SK.61/DJKA/5/13	Standar Beton Pracetak untuk Prasarana Perkeretaapian
	AREMA Ch. 30	Concrete Ties

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016	Standard Specification Concrete Aggregates
		SNI 8321-2016	Concrete Aggregate Specification
Cement		SNI 15-2049-2004	Portland's Cement
Admixture		ASTM C494 - 2016	Standard Specification for Chemical Admixture for Concrete
Concrete	Compressive Strength at : 28 Days : 600 kg/cm^2 (Cube); 50 MPa (Cylinder)	SNI 2847-2013	Structural Concrete Requirement
PC Wire	SBPDL 1275/1420	JIS G 3536 : 2008	(Steel Wires dnd Strands for Prestressed Concrete)
	KBjP-R	SNI 1155 : 2011	(Uncoated Steel Wire for Prestress Concrete (KBjP/Pc Wire))
PC Bar	SWPD-1	JIS G 3137 : 2008	(Small Diameter Steel Bars for Prestressed Concrete)
	KBjP-Q RI	SNI 7701 : 2011	(Quench Steel Bar for Precast Concrete (Pc Bar/KBjP-Q))

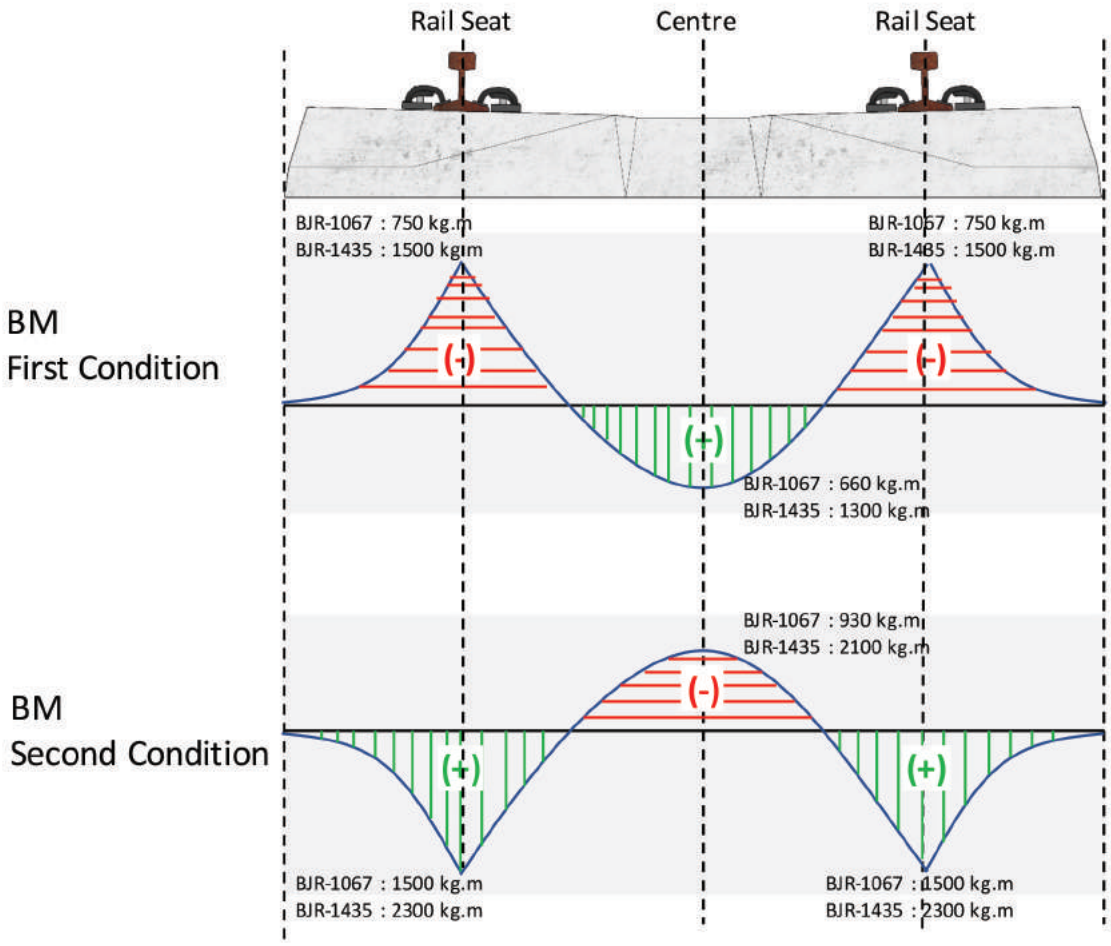
PRODUCT DIMENSION



Type	Sleeper Length	Depth (mm)		Width at Rail Seat (mm)		Width at Center (mm)	
	(mm)	At Rail Seat	At Center	Upper	Bottom	Upper	Bottom
BJR-1067	2000	220	195	150	260	150	245
BJR-1435	2440	225	200	190	300	190	285

TECHNICAL SPECIFICATION

Type	Track Gauge (mm)	Design Axle Load (ton)	Train Speed (km/h)	Sleeper Weight (kg)	Moment at rail seat		Moments at Centre	
					Positive(+)	Negative(-)	Positive(+)	Negative(-)
BJR-1067	1067	18	120	203	1500	750	660	930
BJR-1435	1435	25	160	316	2300	1500	1300	2100



CONCRETE SLEEPER FOR RAILWAY

Concrete Sleeper for Railway on Board

Concrete Sleeper for Railway on Project

FACADE

Dedication for Movement

DESCRIPTION

Precast concrete that used as façade of building. Easy & fast installation and less formwork & falsework.

TECHNICAL

Façade & Structural Joint : Mechanical Connection
Façade & Façade Joint : Sealant & Backup Rod

DESIGN & MANUFACTURING REFERENCE

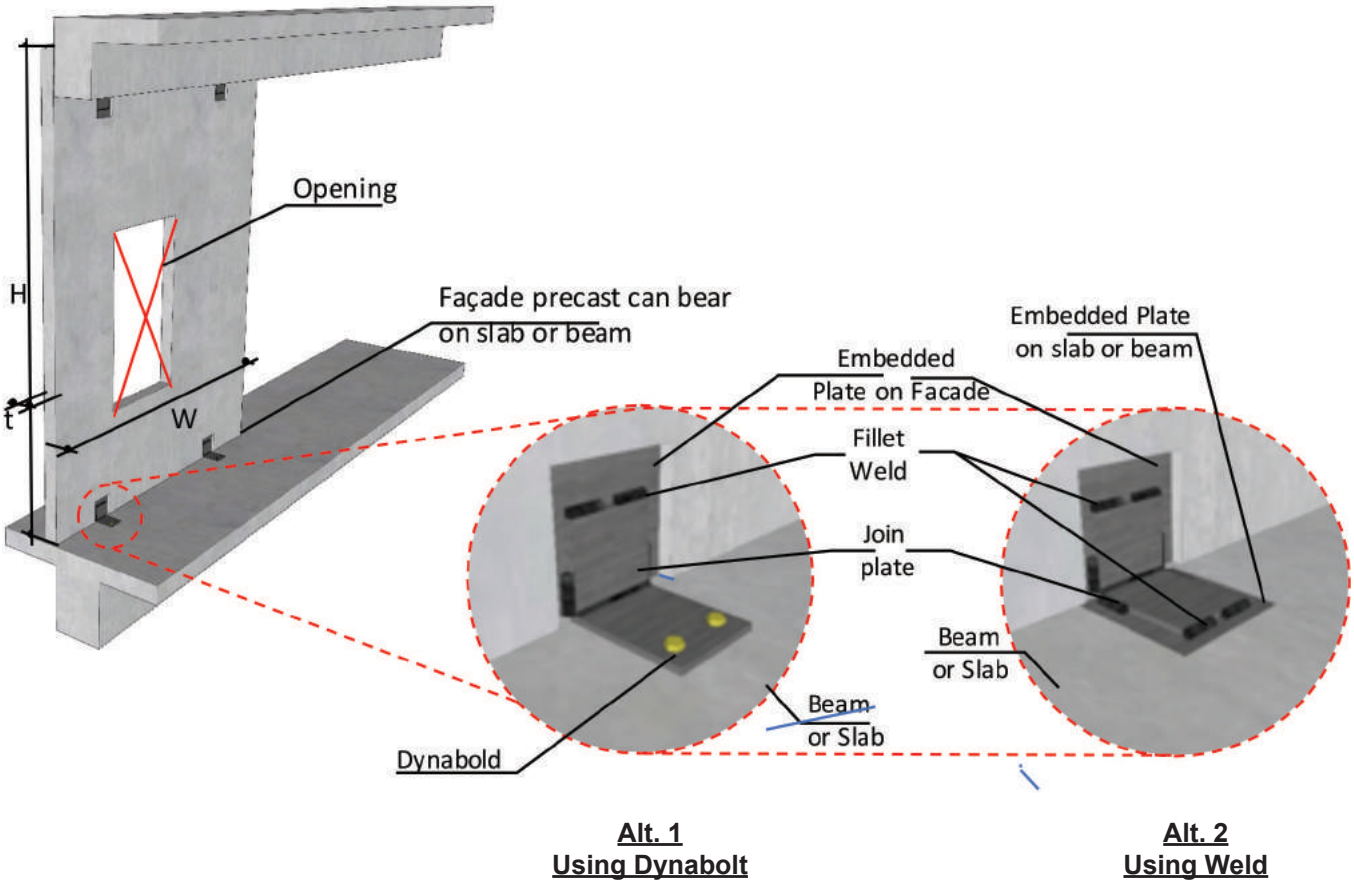
Design	SNI 03-2847-2013	Indonesian Concrete Code
	SNI 7833:2012	Tata cara perancangan beton pracetak & beton prategabg untuk bangunan Gedung

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Aggregate		ASTM C33 - 2016 SNI 8321-2016	(Standard Specification Concrete Aggregates) (Concrete Aggregate Specification)
Cement		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for concrete)
Concrete	Compressive Strength at : 28 Days : 300 kg/ cm^2(Cube); 25 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
Wire Mesh	JKBN Bentuk A	SNI 07-0663-1995	(Wire Mesh for Concrete Reinforcement)
Reinforced Rebar	BjTS 40 For D ≥ 13mm BjTP 24 For D < 13mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)

FACADE

PRODUCT DIMENSION



Alt. 1
Using Dynabolt

Alt. 2
Using Weld

H & W dimension determined based on building façade, with limitation 5 m on Width (W) and 3,6 m on Height(H) and Lifting Equipment SWL

Thickness Recommendation (t) = 10 cm

Opening can be determined by consumer's need

Facade on Board

Facade on Learning Center WSBP, Karawang

Facade on Learning Center WSBP, Karawang

Facade on Learning Center WSBP, Karawang

ELECTRIC POLES

DESCRIPTION

Prestress Concrete Poles for Electrical Distribution Line with concrete strength at 28 days : 500 kg/cm2

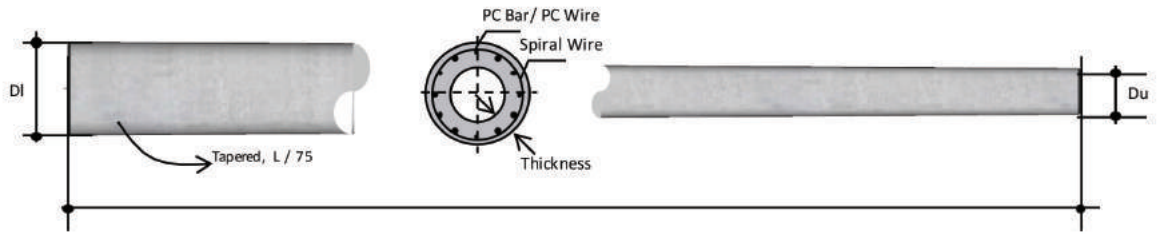
DESIGN & MANUFACTURING REFERENCE

Design	SPLN D3.019-2 : 2013	Electric Pole Specification Part 2 : Prestressed Concrete Poles
	SNI 03-2847-2022	Indonesia Standard Code for Structual Concrete

SPECIFICATION OF SOURCE MATERIAL

Item	Specification	Reference	
Agregat		ASTM C33 - 2016	(Standard Specification Concrete Aggregates)
		SNI 8321-2016	(Concrete Aggregate Specification)
Semen		SNI 15-2049-2004	(Portland's Cement)
Admixture		ASTM C494 - 2016	(Standard Specification for Chemical Admixture for Concrete)
Concrete	Compressice Strength at 28 day: 500 kg/ cm^2 (Cube); 50 MPa (Cylinder)	SNI 2847-2013	(Structural Concrete Requirement)
PC Wire	SBPDL 1275/1420	JIS G 3536 : 2008	(Steel wires and Strands for Prestressed Concrete)
	KBjP-R	SNI 1155 : 2011	(Uncoated Steel Wire for Prestress Concrete (KBjP/Pc Wire))
PC Bar	SWPD-1	JIS G 3137 : 2008	(Small Diameter Steel Bars for Prestressed Concrete)
	KBjP-Q RI	SNI 7701 : 2011	(Quench Steel Bar for Precast Concrete (Pc Bar/KBjP-Q))
Spiral Wire	SWM-A / SWM-P	JIS G 3532 : 2011	(Low Carbon Steel Wires)
Reinforcement Bar	BjTS 40 For D >10mm	SNI 2052-2014	(Concrete Reinforcement Steel Bar)
	BjTP 24 For D ≤ 10mm		
	Maximum resistance : $5x10^{-3}$ ohm/m	(SPLN D3.019-2 : 2013)	Electric Pole Specification Part 2 : Prestressed Concrete Poles
Welding	AWS E7016	AWS D1.1 : 2000	(Structural Welding Code - Steel)

PRODUCT DIMENSION



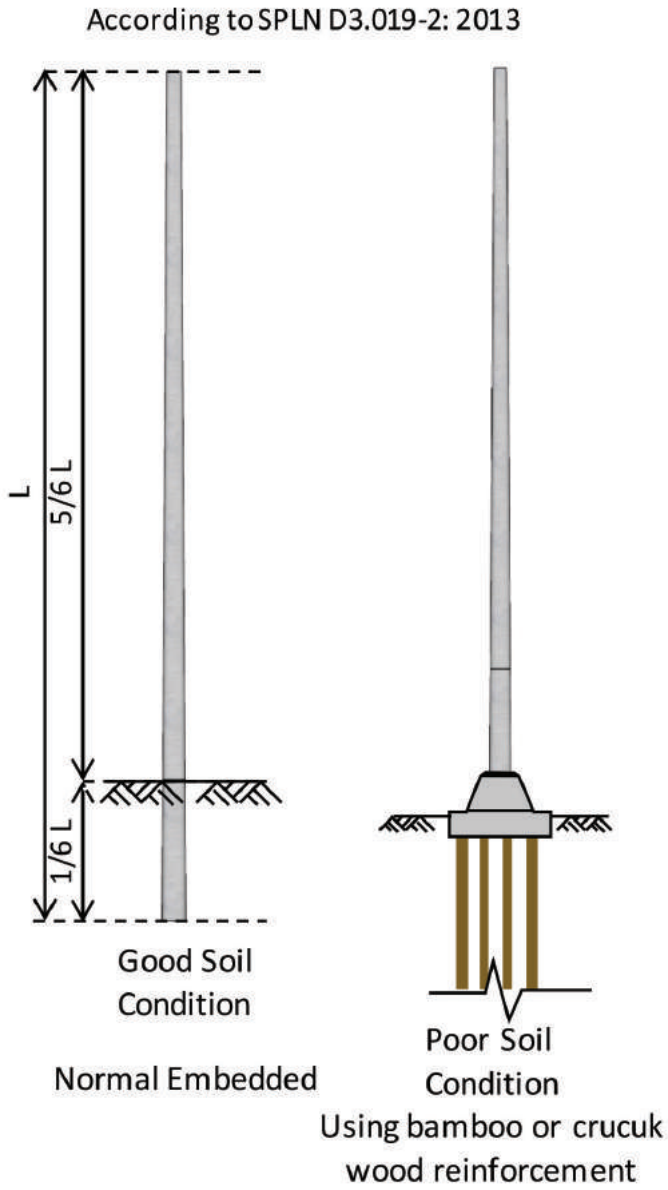
Type	Length L (m)	Working load (daN)	Outer Nominal Diameter(mm)		Product Thickness(mm)	
			Upper (Du)	Bottom(Dl)	Upper	Bottom
9/100 (157)	9	100	157	277	40	55
9/200 (157)	9	200	157	277	40	55
9/350 (190)	9	350	190	310	45	60
11/200 (190)	11	200	190	337	45	70
11/350 (190)	11	350	190	337	45	70
11/500 (190)	11	500	190	337	45	70
12/200 (190)	12	200	190	350	45	75
12/350 (190)	12	350	190	350	45	75
12/500 (190)	12	500	190	350	45	75
13/350 (190)	13	350	190	363	45	80
13/500 (190)	13	500	190	363	45	80
14/350 (190)	14	350	190	377	45	90
14/500 (190)	14	500	190	377	45	90

PRODUCT APPLICATION

source wikipedia

ELECTRIC POLES

PRODUCT INSTALATION



Electric Poles on Board

Electric Poles on Project

READY MIX

Dedication for Movement

PT Waskita Beton Precast, tbk operates dedicated ready mixed concrete plant in several area at indonesia

All Concrete is manufactured relevant with ASTM standards. Our ready mixed concrete serve all the variant of concrete that can be seen on table

Concrete Class	Grade			Usage
	Cylinder	Cube	Flexural	
A	FC' 40	K-500	-	Generally used for concrete structure such as : Concrete Prestress, piles, pier head structures, and other
A2	FC' 35	K-400	-	
B	FC' 30 (SL 12 ± 2)	K-350	-	Generally used on concrete structure such as : Column, beam, diaphragm, borepile, and other
B2	FC' 30 (SL 16 ± 2)	K-350	-	
C	FC' 20	K-250	-	Generally used for unreinforced concrete, such as : siklop concrete, sidewalk, housing, and other
D	FC' 15	K-175	-	
E	FC' 10	K-125	-	Generally used on : workshop floor, and lean concrete
P	-	-	FS-45	Rigid Pavement

Source : Bina Marga Standards
Not limited on table specification, other class can be designed and produced

Type of slump : Slump 0 cm to flow slump 60 cm

We can also produce special concrete such as :

- Fiber Concrete (lightweight concrete with fiber reinforced)
- High strength concrete **(K 500 to K 1000)**
- Fastcrete (Concrete that can dry fast, demoulded earlier, accelerate your progress project)
- Porous Concrete (for green sidewalk that can infiltrate water faster)

Other grade or specification can be produced based on user needs.

Our typical batching plant Capacity :

60 m3 /hour and 90 m3 /hour that spread throughout Indonesia.

We are ready to make dedicated batching plant for customer's project wherever project located if minimum contract value are matched.

Dedicated Batching Plant Facilities :

Batching Plant Computer Controlled, wet system

Laboratorium at Plant Are (with Compressive tes machine that always calibrated yearly)

Truck Mixer

Concrete Pump

READY MIX

Readymix Process on Plant

Readymix on Process

Readymix on Process

Readymix on Process