



PT Wijaya Karya Beton Tbk.

Brochure

The Precast Concrete Manufacturer



2025 *Edition*



WE OFFER EFFECTIVE & EFFICIENT SOLUTION MORE THAN WHAT YOU CAN THINK OF.

Largest capacity and widest product range

WIK A Beton improves factory capacity as part of investment plan each year. By owning quarries, WIK A Beton can secure the supply of raw materials. There is always a room to create more products according to market need..

Value-adding engineering services

Each project might require modification of regular precast concrete product. As solution, WIK A Beton provides engineering services to accommodate clients' requirements as best as possible.

Nation-wide sales area

With nation-wide sales area, WIK A Beton ensures customer satisfaction through the right product, and the right delivery time, with the right price.

Delivery

WIK A Beton caters to different client requirements in delivery process in order to improve cost efficiency.

Installation

Latest machinery is ready to support the installation of precast concrete products, such as launching gantry, innerboring pile technology, and post-tensioning.





VISION

To become a sustainable trusted global company that **provides solution in the concrete industry**



MISSION

- 1 To provide products and services on a global scale as a solution to customer needs.
- 2 To carry out operational excellence with global company qualifications based on risk management and digital technology with a sustainable environmental perspective to meet stakeholder aspirations.
- 3 To establish strategic collaboration with working partners that is mutually beneficial and provides benefits to the social environment.
- 4 To develop employee competency and welfare for continuous performance improvement.
- 5 To implement healthy and accountable financial management.

ABOUT US

Business activities in precast concrete products were initiated by PT Wijaya Karya (now known as PT Wijaya Karya (Persero) Tbk or WIKA) in 1978. The robust economic growth and developments in Indonesia at that time accelerated the growth of the precast concrete product business. To anticipate this, WIKA continued to expand its business operations by setting up new plants and creating a variety of precast concrete products.

To enhance its operations and professionalism, PT Wijaya Karya Beton Tbk (WIKABETON) was established as a subsidiary of PT Wijaya Karya on March 11, 1997.

As the market leader in the industry in Indonesia, WIKABETON is supported by its operational network, which consists of 14 plants and several sales offices scattered throughout Indonesia. This network is designed to ensure customer satisfaction.



The implementation of good HSE (Health, Safety, and Environment) practices is a key commitment of WIKABETON in its business processes. WIKABETON continuously strives to raise awareness regarding occupational safety, health, and environmental concerns among all employees to create a productive, safe, and comfortable work environment.

WIKABETON has implemented several quality and HSE management systems, including:

- ISO 9001:2015 (Quality Management System)
- ISO 45001:2018 (OHS Management System)
- ISO 14001:2015 (Environmental Management System)
- SMK3 PP 50 Tahun 2012 (Occupational Health and Safety Management System)

Committed to providing excellent service, WIKABETON has been engaged in upstream precast concrete production since 2013, operating three quarries in various regions in Indonesia: Cigudeg, West Java; South Lampung; and Donggala, Palu. Through these quarries, WIKABETON also provides a variety of precast concrete raw material products such as split stone, screen stone, ash stone, and others.



WIKABETON has also expanded its business by providing installation services for precast concrete products using the innerboring system since 2014. This technique involves erection with the principles of non-pollution, no dirt, and no vibration. To date, WIKABETON is the first and only company in Indonesia capable of providing the innerbore system.

To complement services related to precast products, WIKABETON provides additional services such as post-tensioning services and installation services, including piling services and beam installation using a launcher gantry.



After establishing its position as the market leader with a dominant market share in Indonesia, WIK A Beton expanded into the readymix construction market in 2017.



To anticipate global developments, WIK A Beton has developed a Concrete Research Laboratory since 2018, certified by KAN in 2023. This laboratory is capable of implementing national and international standards in accordance with the laboratory quality policy integrated with the SNI ISO/IEC 17025:2017 quality system.

With the support of excellent product quality, technology, and human resources, WIK A Beton is constantly trusted to work on various major and prestigious projects in Indonesia.



In realizing WIK A Beton's vision to become a global company, WIK A Beton began developing an overseas sales unit in 2021 to capture foreign markets. Focusing on the ASEAN region, WIK A Beton is currently entrusted with a major railway project in Philippines by leveraging the expertise of WIK A Beton. This trust has been earned due to WIK A Beton's successful execution of the MRT and LRT projects in Jakarta.

WIK A Beton is committed to preserving the environment. Some of the efforts undertaken by WIK A Beton to maintain environmental sustainability and reduce carbon emissions include innovative production processes that are more environmentally friendly (zero waste), tree planting, installing solar panels at all factories, and using electric vehicles.



WIK A Beton employs several approaches to reduce carbon emissions, including the use of low-carbon materials, innovative construction techniques, and strategies for energy efficiency and renewable energy generation. By reducing both embodied and operational carbon through various Greenship certifications, WIK A Beton significantly lowers its overall carbon footprint. This contributes to global efforts to mitigate climate change and achieve sustainability goals throughout all stages of the production process, from raw material supply to the final production stage.

Furthermore, WIK A Beton will continue contributing to the nation's best infrastructure projects and keep providing the best engineering solutions through commitment, innovation, balance, excellence, relationships, teamwork, and integrity.



PRECAST CONCRETE PRODUCTS

are commonly used in the construction nowadays. Almost all of the structures require it. It is simply because the use of precast concrete has lot of advantages.



Time Efficiency

The Component of the structures, which is made of precast concrete can be simultaneously manufactured off the site on the concrete factory, construction schedules can be accelerated, once on site, precast components can be quickly erected and reducing the overall construction time compared to conventional methods.



Quality Control

Precast concrete is manufactured in controlled environments, allowing for consistent quality and precision in production. This controlled settings minimizes the impact of weather conditions and ensure that each component meet strict quality standards.



Cost Savings

While initial cost for precast concrete may be higher than conventional due to the need for specialized manufacturing facilities, but the overall project cost can be lower. Time saving in construction reduced labor requirements, minimal site disruption that can contributed to cost saving in the long run.



Design Flexibility

Precast concrete offers designers a wide range of options in terms of shapes, sizes, textures, and finishes. Custom molds can be created to produce unique architectural element, allowing for creativity and versatility in design.



Durability and Longevity

Precast concrete is known for its durability and resistance to weathering, corrosion, and fire. The controlled manufacturing process ensure that precast elements are of high quality and designed to withstand various environmental conditions, resulting in long-term structural integrity

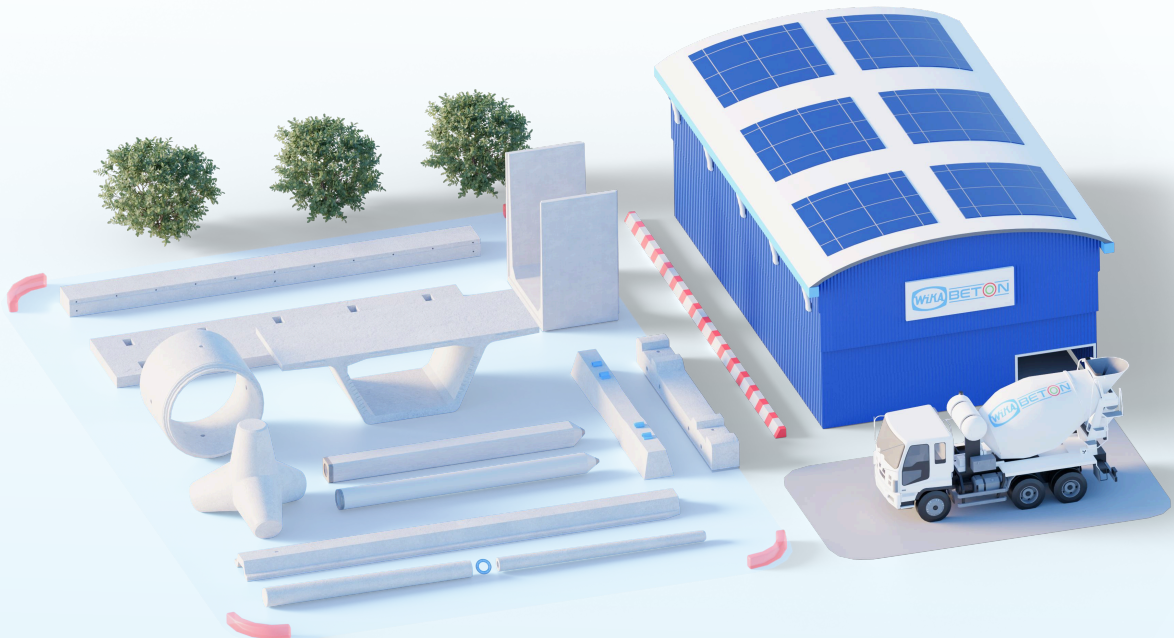


Environmental Benefits

Precast concrete production can be more environmentally friendly compared to conventional construction methods. The controlled manufacturing process generates lest waste, and the used of recycled materials in concrete mixes can further reduce environmental impact. Additionally, precast components are often reusable and recyclable at the end of their service life.

MATERIAL SPECIFICATION

Item	Reference	Description	Specification
Aggregate	SNI 8321 ASTM C33/C33M	Standar Specification for Concrete Aggregates	
Cement	SNI 2049 SNI 7064	Portland Cement Portland Cement Composite	Standard Product Type I Special Order : Type II or V
Admixture	ASTM C494/C494M	Standar Specification for Chemical Admixture for Concrete	Type F : High Range Water Reducing Admixture
Concrete	SNI 2834 SNI 2493	Concrete Mix Design Making and Curing Concrete Sample	
PC Strand	SNI 1154 ASTM A416/A416M	Standar Specification for Steel Strand Uncoated Seven-Wire for Prestressed Concrete	KBjP-P7 RB Grade 270 (Low Relaxation Type)
PC Wire	SNI 1155 JIS G 3536	Uncoated Stress-Relieved Steel Wires and Strand for Prestressed Concrete	KBjP-N SWPD 1 (Deformed Wire Type)
PC Bar	SNI 7701 JIS G 3137	Small Size-Deformed Steel Bar for Prestressed Concrete	KBjP-Q N1 Grade D - Class 1 - SBPD 1275/1420
Rebar	SNI 2052	Reinforcement Steel for Concrete	Steel Class : BjTS 420 A/B (Deformed) Steel Class : BjTP 280 (Round)
Spiral Wire	SNI 07-0053 JIS G 3532	Low Carbon Steel Wire	SWM-P (Round Type) Cold-reduced steel wire for the reinforcement of concrete and manufacture of welded fabric
Joint Plate	SNI 7563 JIS G 3101	Rolled Steel for General Structure	SS400 (Tensile Strength 400 N/mm 2) Applicable steel product for steel plates and sheets, steel strip in coin, sections, flats and bars
Welding	ANSI / AWS D1.1	Structural Welding Code Steel	AWS A5.1/E6013 NIKKO STEEL RB 26/ RD 260, LION 26 or equivalent





PC POLES

DESCRIPTION

The Prestressed Spun Concrete Pole (PC Pole) products come in various types, including Distribution Electric Poles, Transmission Electric Poles, Telephone Poles, and Lamp Poles.

These products are produced using the spinning method by utilizing centrifugal force. This type of pole is used for low, medium, and high voltage electricity distribution networks. To facilitate the installation of electric poles in remote areas, PC Poles are also produced in segments.

This product has high flexural strength due to the use of a prestressing system combined with high-quality concrete. WIKABETON PC Poles are certified according to PLN standards (SPLN). This is achieved by conducting periodic testing and product certification by the PT PLN (Persero) Central Certification Agency (PLN PUSERTIF). Thus, the quality of the product is always guaranteed.

Type of Poles

• DPC Poles

Prestressed Concrete Poles for Electrical Distribution Line

• SDPC Poles

Segmental Prestressed Concrete Poles for Electrical Distribution Line
Joint system : Bolt and nuts

• TPC Poles

Prestressed Concrete Poles for Telecommunication Line

• STPC Poles

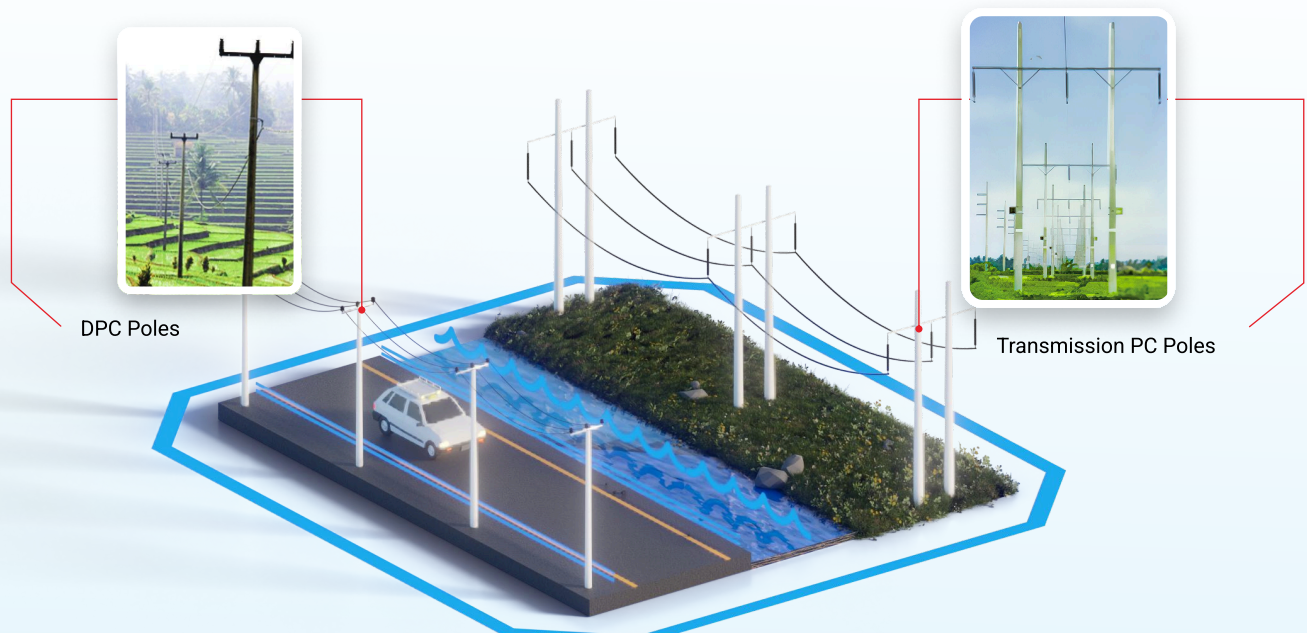
Segmental Prestressed Concrete Poles for Electrical Transmission Line
Joint system : Welding at steel joint plate

DESIGN REFERENCE

Design

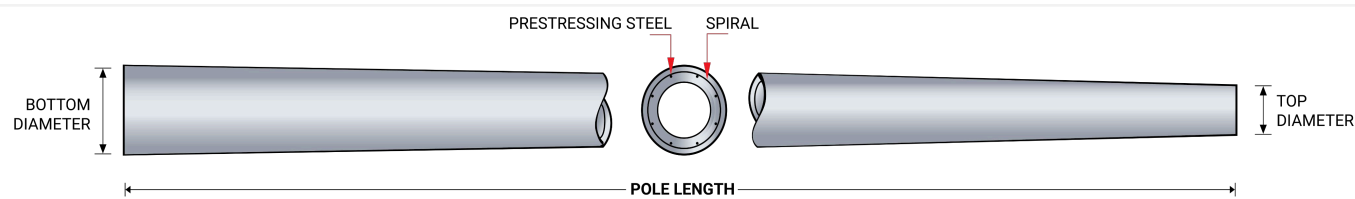
SNI 6880	Structural Concrete Specification
SPLN D3.019 - 2:2021	Prestressed Concrete Poles for Distribution Line
SPLN 121 : 1996	Prestressed Concrete Poles for Transmission Line
STEL-2001 Ver.2	Telecommunication Specification - Prestressed Concrete Spun Poles
SNI 2847	Indonesian Concrete Code for Concrete

PRODUCT APPLICATION



PRODUCT SHAPE

PC Poles



SPECIFICATION

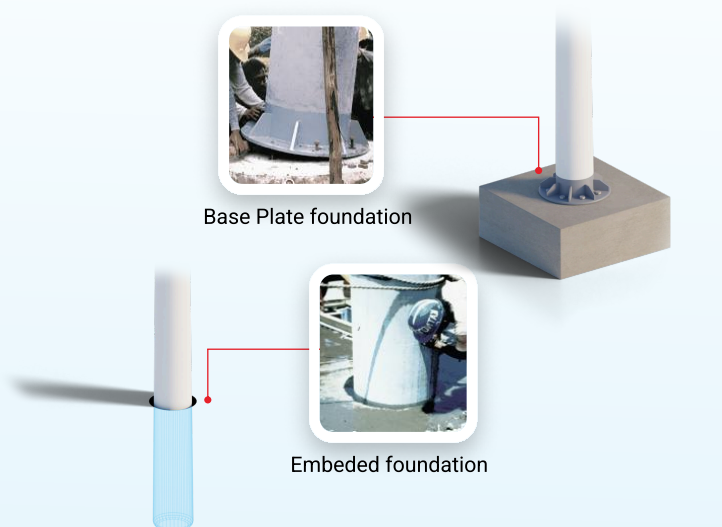
Concrete Compressive Strength $f_c' = 42 \text{ MPa}$

Type	Length (m)	Horizontal Load (daN)	Outside Diameter		Weight (kg/pcs)
			Top (mm)	Bottom (mm)	
Electrical Distribution Line PC Poles					
DPC	9	200	157	277	580
		350	190	310	710
DPC	11	200	190	337	1.050
		350	190	337	1.050
DPC	12	200	190	350	1.230
		350	190	350	1.230
		500	190	350	1.230
DPC	13	350	190	363	1.410
		500	190	363	1.410
DPC	14	350	190	377	1.670
		500	190	377	1.670
Telecommunication Line PC Poles					
TPC	7	100	124	202	300
		150	124	202	300
		200	157	235	400
		350	190	268	500
TPC	8	100	124	213	360
		150	124	213	360
		200	157	246	480
		350	190	279	600
TPC	9	100	124	224	430
		150	124	224	430
		200	157	257	560
		350	190	290	700
Segmental Electrical Distribution Line PC Poles					
SDPC	9	200	157	277	580
SDPC	11	200	190	337	1.050

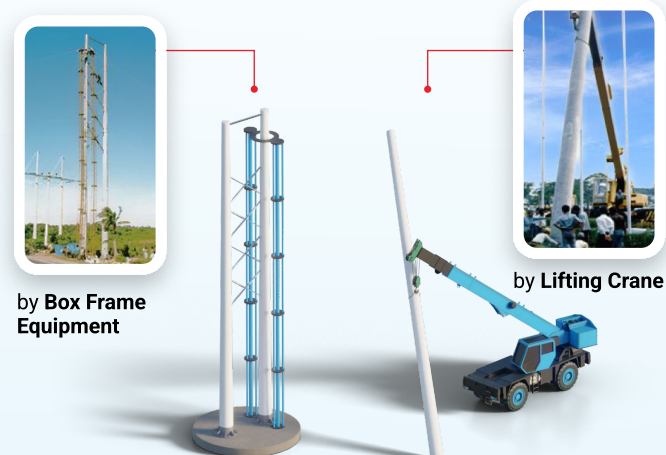
Concrete Compressive Strength $f_c' = 50 \text{ MPa}$

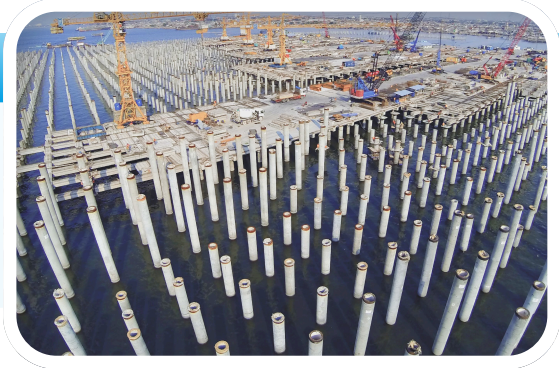
Type	Length	Horizontal Load (daN)	Outside Diameter		Weight (kg/pcs)
	(m)		Top (mm)	Bottom (mm)	
Segmental Electrical Transmission Line PC Poles					
STPC	17	800	245	500	3.030
		1.000	290	545	3.650
		1.200	290	545	3.650
STPC	18	800	245	515	3.320
		1.000	290	560	3.990
		1.200	290	560	3.990
STPC	19	800	245	530	3.630
		1.000	290	575	4.350
		1.200	290	575	4.350
STPC	22	800	245	575	4.650
		1.000	290	620	5.510
		1.200	290	620	5.510
STPC	23	800	245	590	5.010
		1.000	290	635	5.930
		1.200	290	635	5.930
STPC	25	800	245	620	5.820
		1.000	290	665	7.040
		1.200	290	665	7.040
STPC	27	800	245	650	6.680
		1.000	290	695	7.800
		1.200	290	695	7.800
STPC	30	800	245	695	8.500
		1.000	290	740	9.400
		1.200	290	740	9.400

POLES FOUNDATION TYPE



POLES INSTALLATION METHOD





PC PILES

DESCRIPTION

WIKA Beton PC Pile products have various cross-sections, namely PC/PHC Spun Piles, PC Spun Square Piles, PC Square Piles, PC Cylinder Piles, and PC Triangular Piles. There are two production systems for WIKA Beton PC Pile products: the non-spinning process (for PC Square Piles and PC Triangular Piles) and the spinning process (for PC Spun Piles, PC Spun Square Piles, and Cylinder Piles).

The combination of high-quality concrete with the spinning process results in high concrete density due to centrifugal force. This process makes WIKA Beton PC Piles highly durable and permeable, allowing them to withstand special environmental conditions. The development of PC Spun Square Piles, also produced by the spinning process, offers the advantage of having a surface perimeter equivalent to that of PC Square Piles but using less material, making the product lighter and more cost-efficient compared to PC Square Piles.

The latest product in the PC Pile line is the Cylinder Pile. The Cylinder Pile is a large-diameter (up to 2 meters) PC Spun piles with adjustable lengths up to 60 meters. The Cylinder Pile consists of several segments assembled into a single pile using a prestressed system. Typically, this product is used in coastal areas as foundations for piers, breakwaters, or sea walls.

Type of Piles

- PC/PHC Spun Piles
- PC Spun Square Piles
- PC Square Piles
- PC Triangular Piles
- PC Cylinder Piles



Joint System

Welding at steel joint plate

Type of Shoe

Concrete Pencil Shoe (Standard) for PC Spun Piles, Spun Square Piles & Square Piles
Mamira Shoe or Cross Fin Shoe (Special Order) for Spun Piles

Method of Driving

Dynamic Pile Driving : Diesel Hammer and Hydraulic Hammer
Static Pile Driving : Hydraulic Static Pile Driver (Jacking Pile)
Inner Bore System

DESIGN REFERENCE

Design

SNI 6880	Structural Concrete Specification
ACI 543R*	Design, Manufactured and Installation of Concrete Piles
SNI 2847	Indonesian Concrete Code for Concrete
SNI 9156	Specification for Prestressed Concrete Spun Piles



Registration number
S-P-13859

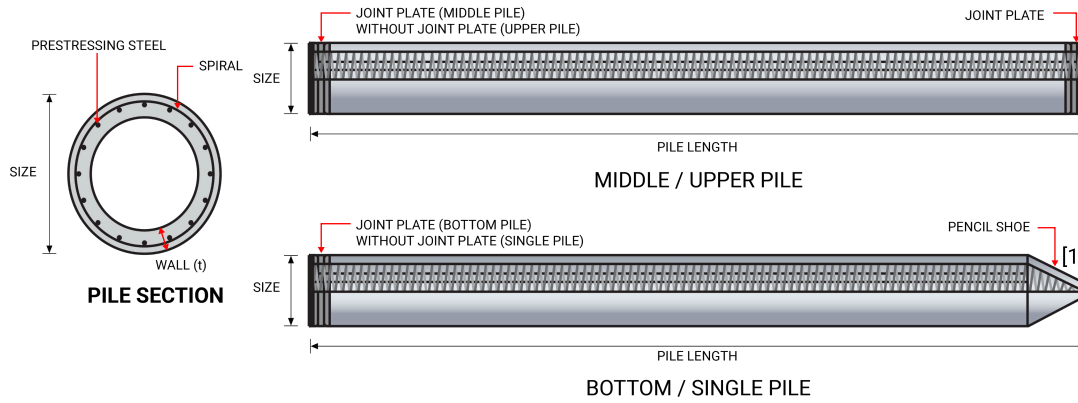
Green Concrete Mix design effect to Reduce Co₂ Emission

PC Spun Piles

Diameter Pile (mm)	300	350	400	450	500	600	800	1000	1200
Concrete Type	Normal Green	Normal Green	Normal Green	Normal Green	Normal Green	Normal Green	Normal Green	Normal Green	Normal Green
Concrete Volume (m³/m)	0.045	0.058	0.077	0.093	0.116	0.157	0.256	0.378	0.495
CO ₂ Emissions (t/m)	8.4	7.2	13.9	11.9	24	20.6	35.4	30.4	55.1
CO ₂ reduction rate (kg CO ₂ eq. /m ton CO ₂ eq. /12m (%))	1.2	2.0	3.4	5.1	7.9	14.5	38.5	83.8	143.5
	0.01	0.02	0.04	0.06	0.09	0.17	0.46	1.01	1.72
	▲14.3	▲14.3	▲14.3	▲14.3	▲14.3	▲14.3	▲14.3	▲14.3	▲14.3

PRODUCT SHAPE

PC / PHC Spun Piles



▲ SCAN ME

PILE DIAGRAM INTERACTION LINK:
<https://www.wika-beton.co.id/engineering>



▲ SCAN ME

MANUAL VIDEO SPUN PILE:
<https://youtu.be/1CCDlGScNpw>

SPECIFICATION

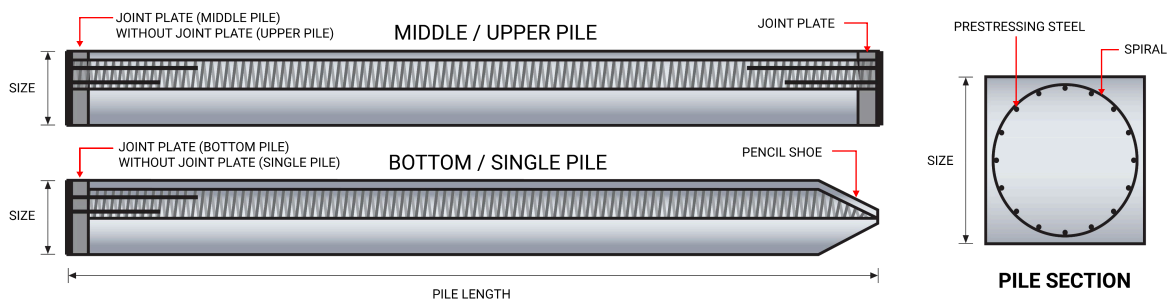
[3] Concrete Compressive Strength : PC Spun Pile : $f_c' = 52 \text{ MPa}$
PHC Spun Pile : $f_c' = 80 \text{ MPa}$

Size	Thickness Wall	Cross Section	Unit Weight	SNI 9156 : 2023				JIS A 5335 : 1987			Allowable Compression			Length of Pile ⁽²⁾
				Class	Effective Prestress	Bending Moment		Class	Bending Moment		PC-52	PHC-80	Decomp. Tension	
						Crack	Nominal		Crack	Break				
(mm)	(mm)	(cm²)	(kg/m)		(MPa)	(kN.m)	(kN.m)		(kN.m)	(kN.m)	(kN)	(kN)	(kN)	(m)
300	60	452	113	A1	4,89	24,5	39,9	A2	24,5	36,8	714	1120	221	6 - 16
				A2	6,37	26,9	50,6	-	-	-	698	1100	288	6 - 13
				A3	7,75	29,4	60,4	A3	29,4	44,1	681	1090	351	6 - 17
				B	9,06	34,3	69,3	B	34,3	61,8	664	1070	410	6 - 19
				C	11,45	39,2	83,8	C	39,2	78,4	636	1040	518	6 - 20
350	65	582	145	A1	3,87	34,3	48,8	A1	34,3	51,5	916	1460	225	6 - 17
				A2	5,06	39,2	62,2	-	-	-	919	1440	294	6 - 13
				A3	7,3	44,1	86,8	A3	41,2	61,8	884	1410	425	6 - 18
				B	8,34	49,0	97,8	B	49,0	88,3	865	1390	485	6 - 20
				C	10,84	58,9	121,7	C	58,8	117,7	828	1340	631	6 - 21
400	75	766	191	A1	3,92	44,1	73,8	-	-	-	1233	1930	300	6 - 13
				A2	4,82	54,0	89,4	A2	53,9	80,9	1210	1910	369	6 - 18
				A3	6,56	63,8	118,2	A3	63,7	95,6	1178	1870	502	6 - 19
				B	8,95	73,6	155,7	B	73,5	132,4	1126	1810	685	6 - 21
				C	10,96	88,3	183,8	C	88,3	176,5	1087	1770	839	6 - 23
450	80	930	232	A1	4,02	73,6	110,9	A1	73,5	110,3	1490	2340	374	6 - 18
				A2	5,5	83,4	139,1	A2	83,4	125,0	1453	2300	511	6 - 19
				A3	7,58	98,1	186,3	A3	98,1	147,1	1405	2240	705	6 - 21
				B	8,87	107,9	214,1	B	107,9	194,2	1373	2210	825	6 - 22
				C	11,22	122,6	260,0	C	122,6	245,2	1314	2140	1043	6 - 24
500	90	1.159	290	A1	4,49	103,0	159,9	A1	103,0	154,4	1843	2900	521	6 - 19
				A2	6,23	122,6	216,2	A2	122,6	183,9	1794	2840	722	6 - 21
				A3	7,33	137,3	250,9	A3	137,3	205,9	1754	2800	850	6 - 22
				B	8,38	147,2	283,0	B	147,1	264,8	1726	2770	971	6 - 23
				C	10,89	166,8	353,5	C	166,7	333,4	1648	2680	1262	6 - 25
600	100	1.571	393	A1	4,28	166,8	251,4	A1	166,7	250,1	2506	3940	672	6 - 21
				A2	5,15	186,4	298,2	A2	186,3	279,5	2476	3900	809	6 - 21
				A3	7,23	215,8	409,7	A3	215,7	323,6	2388	3810	1136	6 - 23
				B	8,47	245,2	473,2	B	245,2	441,3	2329	3750	1330	6 - 25
				C	10,76	284,5	581,4	C	284,4	568,8	2239	3640	1690	6 - 28
800	120	2.564	641	A1	4,64	392,4	594,7	A1	392,2	588,4	4065	6410	1189	6 - 24
				A2	5,9	451,3	745,3	A2	451,1	676,6	3976	6320	1512	6 - 26
				A3	7,11	500,3	886,4	A3	500,1	750,2	3906	6220	1823	6 - 27
				B	8,52	539,6	1044,0	B	539,3	970,8	3809	6120	2184	6 - 29
				C	11,17	637,6	1311,0	C	637,4	1274,8	3625	5920	2863	6 - 30
1000 ⁽¹⁾	140	3.782	946	A1	4,71	735,8	1123,0	A1	735,5	1103,2	6009	9450	1782	6 - 27
				A2	5,58	804,4	1316,0	A2	804,1	1206,1	5921	9360	2111	6 - 29
				A3	6,82	912,3	1591,0	A3	912,0	1367,9	5794	9220	2580	6 - 30
				B	8,3	1030,0	1904,0	B	1029,6	1853,3	5643	9050	3139	6 - 30
				C	10,46	1177,0	2372,0	C	1176,7	2353,4	5422	8810	3956	6 - 30
1200 ⁽¹⁾	150	4.948	1.237	A1	4,8	1177,0	1816,0	A1	1176,7	1765,1	7850	12360	2375	6 - 29
				A2	6,11	1275,0	2284,0	A2	1274,8	1912,2	7675	12160	3023	6 - 30
				A3	7,14	1422,0	2640,0	A3	1421,9	2132,8	7538	12010	3533	6 - 30
				B	9,47	1668,0	3504,0	B	1667,0	3000,6	7226	11670	4686	6 - 30
				C	10,85	1962,0	3939,0	C	1961,2	3922,4	7041	11470	5369	6 - 30

Note : 1. Alternative Pile shoe available : Mamira shoe (close end) or cross fin shoe
2. Pile handling calculation should be done when length exceed than standard
3. Concrete compressive strength can be adjusted to meet require spesification

PRODUCT SHAPE

PC Square Piles



SPECIFICATION

Concrete Compressive Strength $f_c' = 42 \text{ MPa}$

Size (mm)	Cross Section (cm ²)	Unit Weight (kg/m)	Class		Bending Moment		Allowable Compression (kN)	Decompression Tension (kN)	Length of Pile* (m)	Splice Class	
			B	S	Crack (kN.m)	Ultimate (kN.m)				Compatible to Body Mcrack	Optional
200 x 200	400	100	A	-	11,1	20,0	513	147	6 - 14	-	-
			B	A	14,5	24,9	479	271	6 - 14	I	II
250 x 250	625	156	A	-	18,3	27,3	824	150	6 - 14	-	-
			B	A	21,3	35,1	790	222	6 - 14	III	IV
			C	B	24,3	41,6	773	291	6 - 15	II	-
			D	C	27,0	47,1	756	357	6 - 15	I	II
300 x 300	900	225	A	A	35,7	55,1	1.151	300	6 - 14	IV	V
			B	B	39,0	66,3	1.126	415	6 - 15	III	IV/V
			C	C	42,9	72,1	1.108	494	6 - 16	II	-
			D	D	48,7	84,4	1.082	573	6 - 17	I	III/IV/V
350 x 350	1.225	306	A	A	53,5	79,1	1.582	377	6 - 15	III	IV
			B	B	58,3	90,7	1.560	449	6 - 16	II	-
			C	C	63,7	108,9	1.528	519	6 - 16	I	IV
			D	D	68,0	124,2	1.497	589	6 - 17	I	III/IV
400 x 400	1.600	400	A	A	77,1	109,9	2.078	454	6 - 15	IV	V
			B	B	84,8	132,9	2.045	527	6 - 16	III	IV/V
			C	C	89,9	152,9	2.012	599	6 - 17	II	III/IV/V
			D	D	113,3	205,2	1.920	932	6 - 19	I	II/III/IV/V
450 x 450	2.025	506	A	A	109,3	156,3	2.632	606	6 - 16	III	V
			B	B	118,6	181,1	2.598	678	6 - 17	III	IV/V
			C	C	127,6	205,0	2.566	750	6 - 18	II	III/IV/V
			D	D	143,8	249,0	2.502	950	6 - 19	I	II/III/IV/V
500 x 500	2.500	625	A	A	147,8	208,8	3.255	611	6 - 17	III	IV
			B	B	158,7	237,3	3.221	758	6 - 17	II	IV
			C	C	168,5	265,1	3.188	848	6 - 18	I	III/IV
			D	D	178,9	291,5	3.156	963	6 - 18	I	II/III/IV

Note : • Prestressed steel : B = PC Bar , S = PC Strand
• Splice capacity with PC Bar heading connection compatible to pile body capacity

SPECIFICATION

Typical Splice

Size (mm)	Splice Class	Bending Moment		Tension	
		Crack (kN.m)	Ultimate (kN.m)	Allowable (kN)	Ultimate (kN.m)
200 x 200	I	16,1	21,8	442	497
	II	7,5	10,0	160	180
250 x 250	I	31,1	42,0	541	609
	II	29,3	39,5	406	457
	III	22,9	31,1	406	457
	IV	12,6	17,1	240	270
300 x 300	I	58,4	78,9	820	923
	II	44,4	60,0	615	692
	III	42,0	56,7	541	609
	IV	38,8	52,5	406	457
	V	22,9	31,0	240	270
350 x 350	I	75,2	101,5	820	923
	II	66,8	90,1	820	923
	III	56,0	75,6	541	609
	IV	32,4	43,6	271	305
400 x 400	I	119,6	161,5	1.157	1.301
	II	110,6	149,3	867	976
	III	92,3	124,6	820	923
	IV	84,1	113,6	615	692
	V	38,9	52,6	271	305
450 x 450	I	154,9	209,2	1.446	1.626
	II	138,0	186,3	1.157	1.301
	III	127,7	172,3	867	976
	IV	64,2	86,7	410	461
500 x 500	I	193,4	261,1	1.163	1.308
	II	161,9	218,6	1.157	1.300
	III	148,5	200,3	867	976
	IV	74,1	100,1	410	461

EXAMPLES OF PILES SPLICE SELECTION

Case 1: Compatible to Body Moment Crack

Splice of PC Piles having equivalent performance to the crack bending moment of the main body.



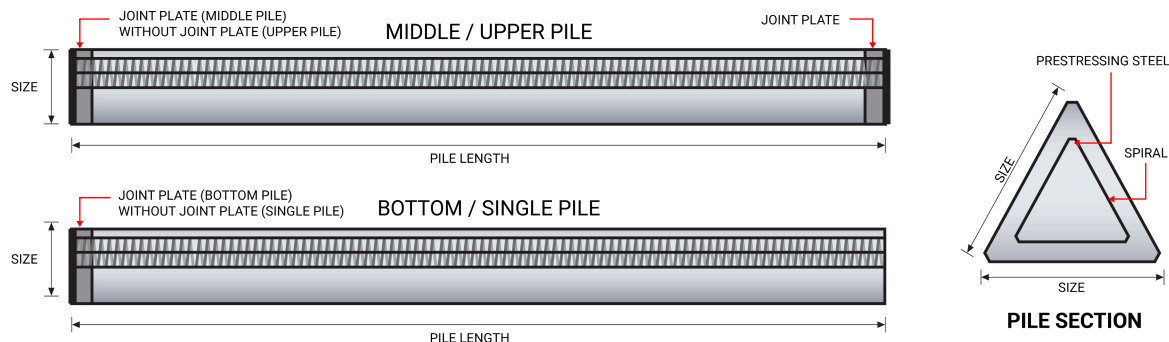
Case 2: Optional Splice

Application of optional splices should be approved by structure designer.



PRODUCT SHAPE

► PC Triangular Piles



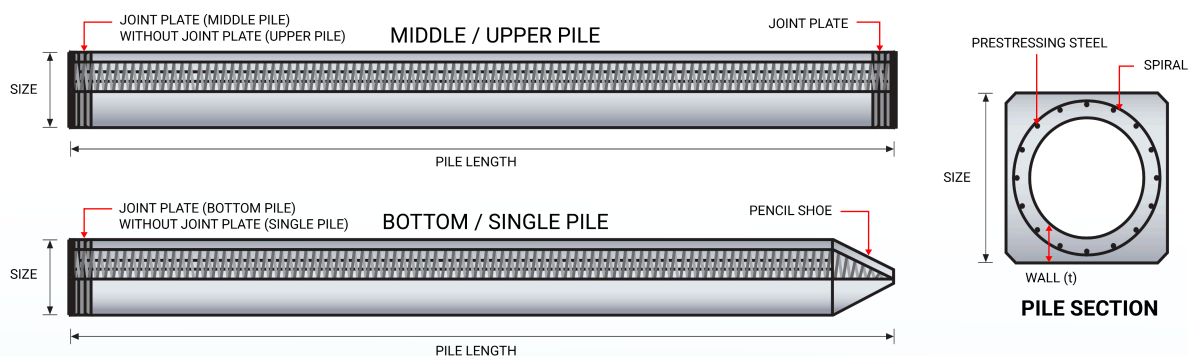
SPECIFICATION

Concrete Compressive Strength $f_c' = 42 \text{ MPa}$

Size (mm)	Cross Section (cm ²)	Section inertia (cm ⁴)	Unit Weight (kg/m)	Class	Bending Moment		Allowable Compression (kN)	Decompression Tension (kN)	Length of Pile * (m)
					Crack (kN.m)	Ultimate (kN.m)			
280	318,7	9.080	79,7	A	6,5	9,0	414	269	6 - 8
				B	8,8	17,4	387	276	6 - 9
320	422,6	16.189	105,7	A	8,7	10,9	559	341	6 - 8
				B	11,8	21,1	531	405	6 - 9

PRODUCT SHAPE

► PC Spun Square Piles



SPECIFICATION

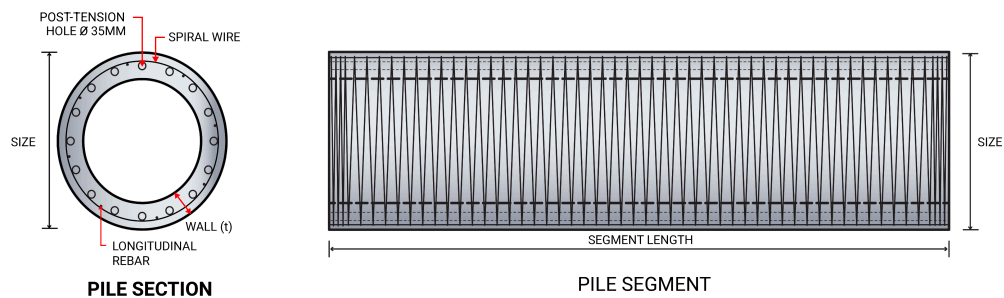
Concrete Compressive Strength $f_c' = 52 \text{ MPa}$

Size (mm)	Thickness Wall (mm)	Cross Section (cm ²)	Section inertia (cm ⁴)	Unit Weight (kg/m)	Class	Bending Moment		Allowable Compression (kN)	Decompression Tension (kN)	Length of Pile* (m)
						Crack (kN.m)	Ultimate (kN.m)			
400 x 400	75	1.109	194.159	277	A2	63,7	98,1	1.791	373	6 - 13
					A3	78,4	117,7	1.771	425	6 - 14
					B	98,1	176,5	1.698	717	6 - 15
					C	107,9	215,7	1.662	899	6 - 16
					A1	83,4	122,6	2.226	375	6 - 13
450 x 450	80	1.365	307.000	341	A2	107,9	166,7	2.186	519	6 - 15
					A3	127,5	204,9	2.148	658	6 - 16
					B	132,4	235,3	2.111	793	6 - 16
					C	152,0	304,0	2.041	1.118	6 - 16
					A1	83,4	122,6	2.226	375	6 - 13

Note : *) Length of Pile may exceed usual standard whenever lifted in certain position

PRODUCT SHAPE

► PC Cylinder Piles



SPECIFICATION

Concrete Compressive Strength $f_c' = 52 \text{ MPa}$

Size (mm)	Thickness Wall (mm)	Cross Section (cm ²)	Section inertia (cm ⁴)	Unit Weight (kg/m)	Class	Bending Moment		Allowable Compression (kN)	Length of Pile (m) Single/Double***
						Crack (kN.m)	Break (kN.m)		
800	120	2.564	1.527.870	641	A	392	637	4.020	24 / 36
					B	539	784	3.824	24 / 36
					C	637	1.177	3.628	30 / 42
					D	735	1.275	3.481	30 / 42
1.000	140	3.782	3.589.517	946	A	735	1.079	5.884	24 / 36
					B	1.030	1.716	5.491	30 / 42
					C	1.177	2.157	5.393	30 / 48
					D	1.324	2.402	5.197	36 / 48
1.200	150	4.948	6.958.136	1.237	A	1.177	1.373	7.845	30 / 48
					B	1.667	2.648	7.305	36 / 48
					C	1.961	3.040	6.962	42 / 54
					D	2.059	3.138	6.864	42 / 60
1.500	170	7.103	15.962.533	1.776	A	2.157	2.599	11.179	36 / 48
					B	2.942	4.315	10.590	36 / 54
					C	3.334	5.099	10.198	42 / 60
1.800	200	10.053	32.672.563	2.513	A	3.628	4.168	15.984	36 / 48
					B	4.609	6.374	15.493	36 / 54
					C	5.099	7.551	14.905	42 / 60
2.000	200	11.309	46.369.907	2.827	A	4.707	5.246	17.945	35 / 55
					B	5.786	7.747	17.357	40 / 60
					C	6.570	9.463	16.866	45 / 65

PRODUCTION, PILE ASSEMBLING AND DISTRIBUTION PROCESS



Segment Production



Stockyard Facility



Segment Assembly with Post-tensioning

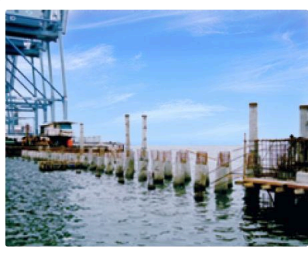


Pile Distribution

PRODUCT APPLICATION



Piles Foundation for Power Plant or Industrial Factory



Piles for Marine Structurer



Piles Foundation for Building



Piles Foundation for Bridges

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 WIKABETON. This production system is very flexible and has high productivity.

WIKABETON 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 WIKABETON 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 Mainline & 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 crossing of railway and road

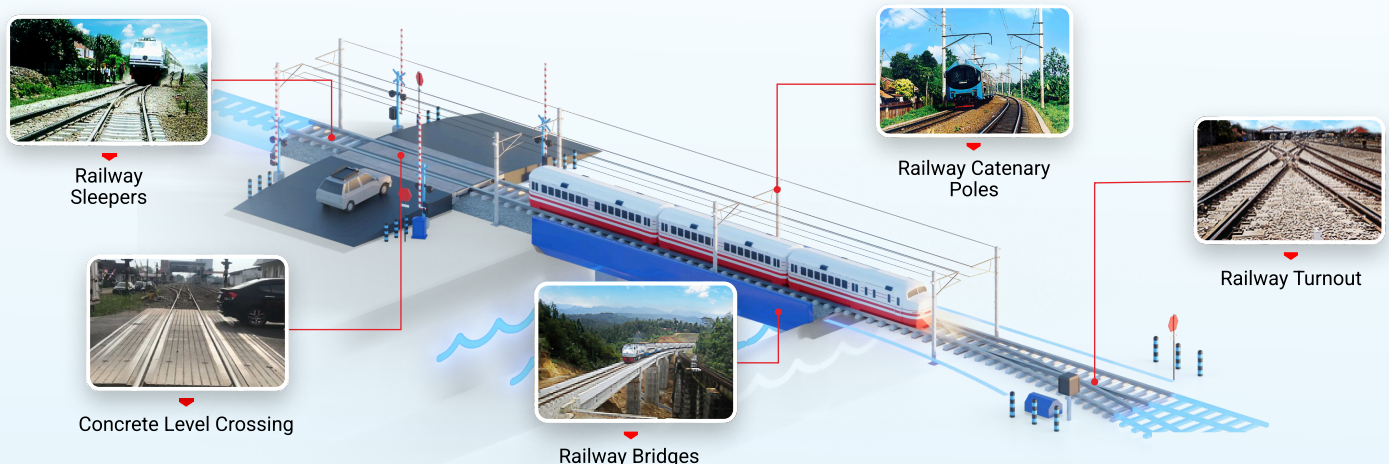


DESIGN REFERENCE

Design

PM No.20 - 2012	Technical Requirement for Railway
SNI 6880	Structural Concrete Specification
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

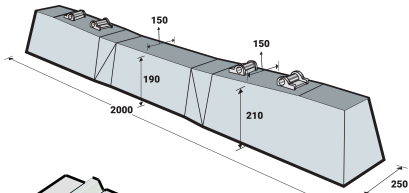
PRODUCT APPLICATION



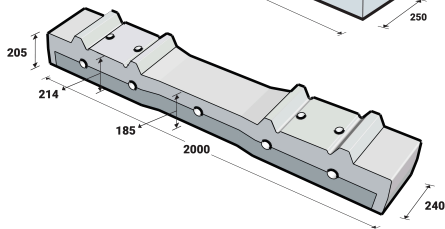
PRODUCT SHAPE

► PC Sleepers

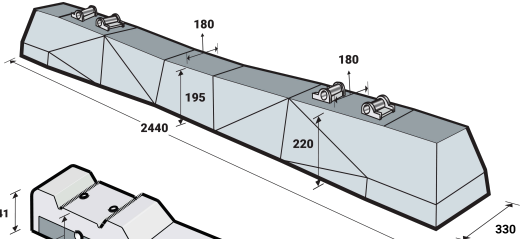
SLEEPER N-67
BALLASTED



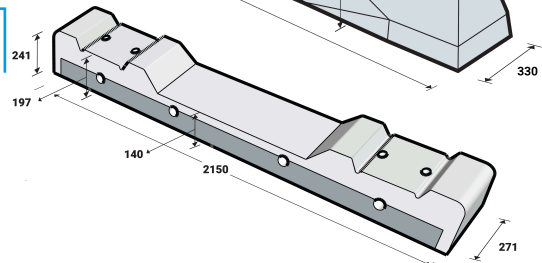
SLEEPER N-67
BALLASTLESS



SLEEPER S-35
BALLASTED



SLEEPER S-35
BALLASTLESS



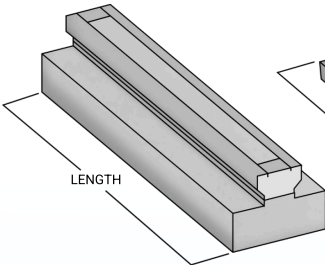
SPECIFICATION

Ballasted Track										
Track Gauge (mm)	Track Type	Design Axle Load (kN)	Design Speed (km/hour)	Sleeper Length (mm)	Compressive 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	Ballasted	250	200	2.440	62	300	2.300	1.600	760	1.100

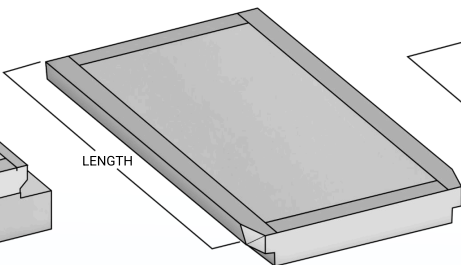
Ballastless Track						
Track Gauge (mm)	Track Type	Design Axle Load (kN)	Design Speed (km/hour)	Sleeper Length (mm)	Compressive Strength (MPa)	Sleeper Weight (kg)
N-1067	Ballastless	180	150	2.000	52	250
S-1435	Ballastless	120	100	2.150	52	270
S-1435	Ballasted/Ballastless	300	50	2.600	52	328

PRODUCT SHAPE

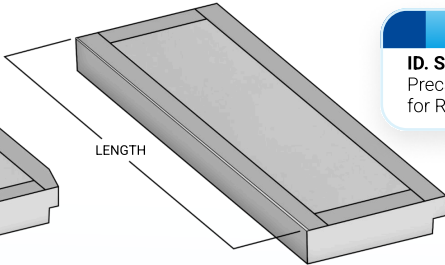
► Concrete Level Crossing



Module Foundation - P1



Module Slab - S1



Module Slab - S2

ID. S00202009173

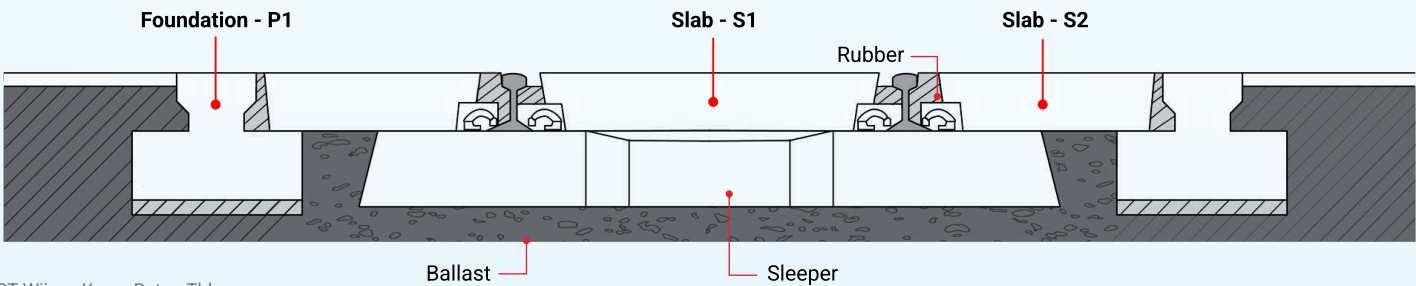
Precast Modules
for Railway Level Crossing Construction

SPECIFICATION

Concrete Compressive Strength $f_c = 52$ MPa					Design Reference	
Module	Length (m)	Width (m)	Height (m)	Weight (kg/m)		
P1	3 - 6	0,475	0,355	310	SNI 1725 : 2016	Indonesian Concrete Code : Design Load for Bridge
S1	3 - 6	0,987	0,155	350	SK.770/KKA.401/DRJD/2005	Technical Guidelines for level crossings between roads and railway lines
S2	3 - 6	0,605	0,148	210	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

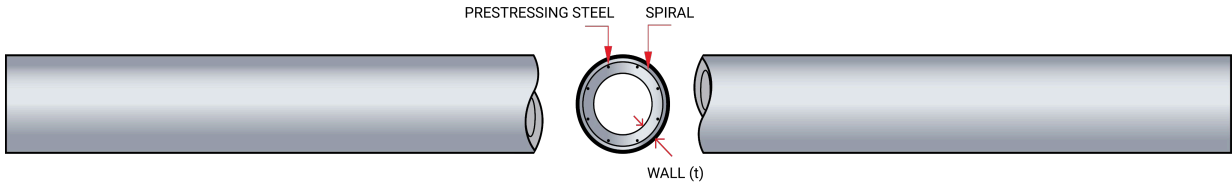
Note : for curved tracks, the module dimensions are customized to the track radius

PRECAST SYSTEM



PRODUCT SHAPE

▶ PC Catenary Poles



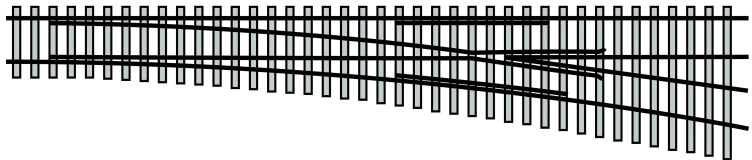
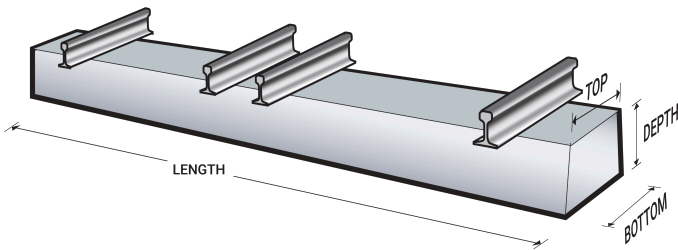
SPECIFICATION

Concrete Compressive Strength $f_c' = 52 \text{ MPa}$

Type	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	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



SPECIFICATION

Concrete Compressive Strength $f_c' = 62 \text{ MPa}$

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

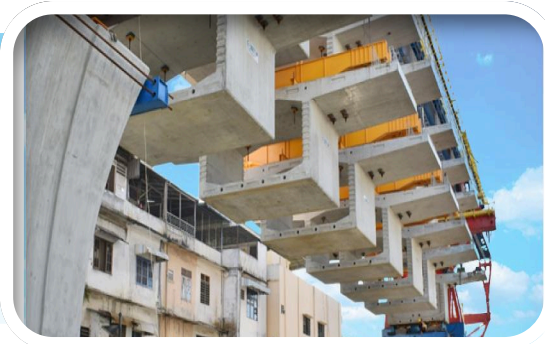


Railway Track Slab



Railway Bridge

BRIDGE CONCRETE PRODUCT



DESCRIPTION

Precast concrete bridge products are used as superstructure components in bridge construction. Typically, bridge superstructures use I-beams, but they have evolved into various cross-section shapes, such as U-type and T-type beams, with spans up to 50 meters. Whilst, for bridge spans up to 60 meters, Bulb Tee types can be used.

For simple bridge constructions requiring quick implementation, WIKA Beton provides voided slab and channel girder products. These bridges can be immediately used by vehicles after the products are installed, as they already function as the bridge slab. Next, the Double Tee (slab) product is used in steel frame bridge structures. The use of Double Tee products can shorten the construction time for new bridges, or if used for bridge deck repairs, the bridge can still remain operational because the work can be arranged in such a way that it does not disrupt vehicle traffic.

Based on the prestressing method, beams are produced using two methods: pre-tensioning and post-tensioning, according to the conditions and needs in the field. Pre-tensioned bridge beams are produced monolithically, while post-tensioned beams are produced segmentally to accommodate construction area limitations and facilitate transportation.

The latest favorite in transportation infrastructure, especially in urban areas, is the bridge structure using Box Girders due to their aesthetic appearance. Additionally, box girders have an efficient cross-section that makes the structural load lighter compared to girder structures. Bridges with box sections provide better torsional resistance, which is very beneficial for curved bridge applications. WIKA Beton's Box girders are made segmentally and can be used for bridge spans ranging from 40 meters to 100 meters.

Type of PC Girder

PC I Girder

PC U Girder

Buld Tee

Double Tee

Voided Slab

Channel Girder

Box Girder

Girder System
Prestressed System

Segmental or Monolit
Post-Tension or Pretension

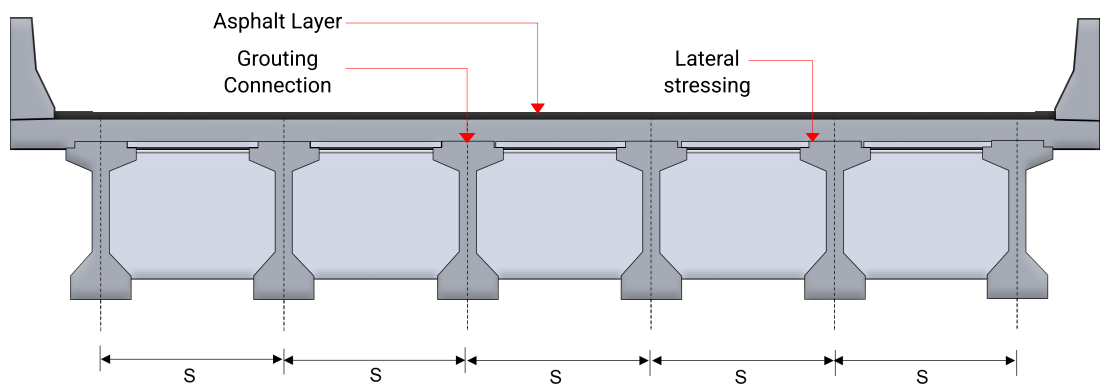
DESIGN REFERENCE

Design

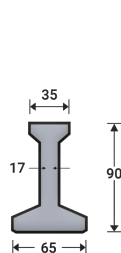
SNI 6880	Structural Concrete Specification
SNI T - 12	Indonesian Concrete Code : Bridge Concrete Design
SNI 1725	Indonesian Concrete Code : Design Load for Bridge
PCI 7 th Edition	Precast and Prestressed Concrete
AASHTO - LRFD	Bridge Design Specifications

PRODUCT SHAPE

PC I Girder

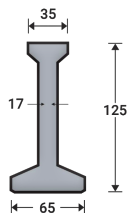


Bridge Cross Section



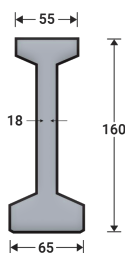
PC I H-90

Area : 2.572 cm²
Inertia : 2.266.607 cm⁴



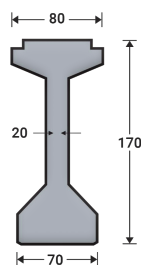
PC I H-125

Area : 3.167 cm²
Inertia : 5.486.255 cm⁴



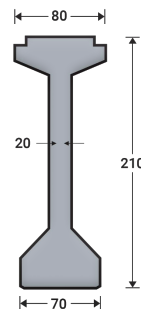
PC I H-160

Area : 4.773 cm²
Inertia : 14.611.104 cm⁴



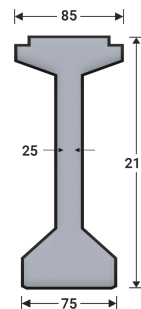
PC I H-170

Area : 6.695 cm²
Inertia : 23.641.085 cm⁴



PC I H-210

Area : 7.495 cm²
Inertia : 41.087.033 cm⁴



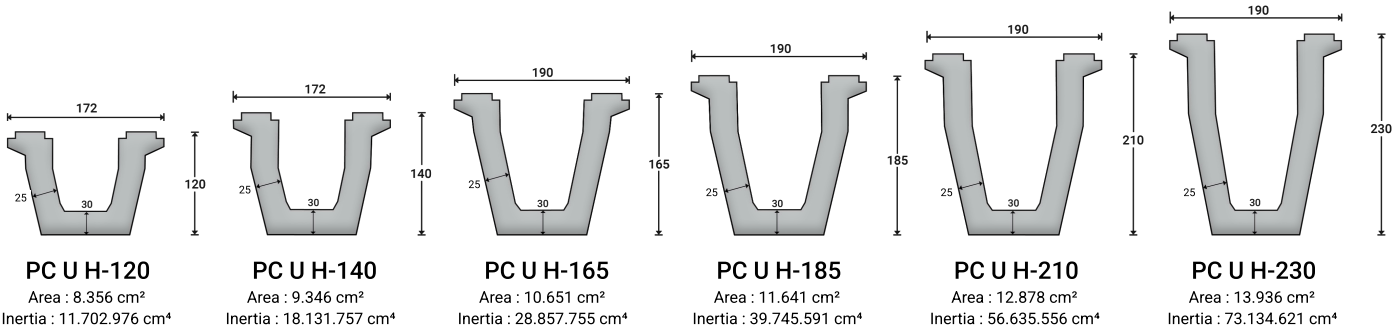
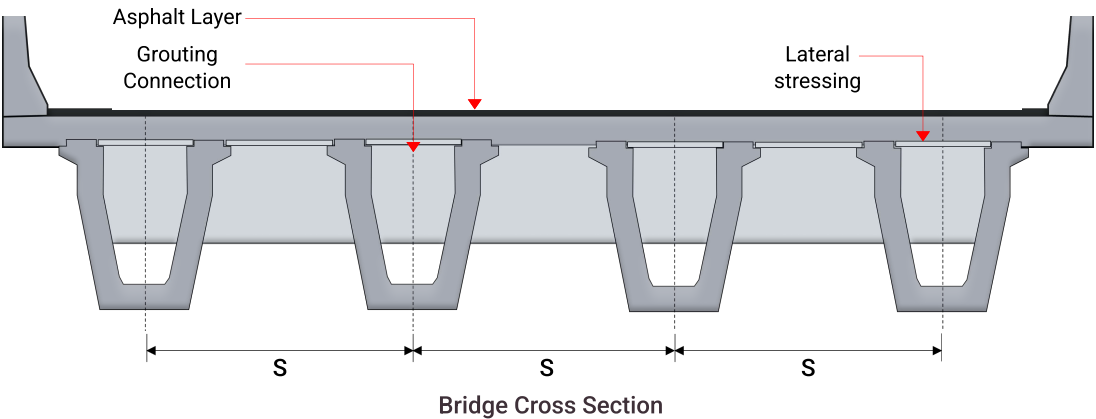
PC I H-210 (span ≥ 46)

Area : 8.454 cm²
Inertia : 44.962.016 cm⁴

SPECIFICATION

Span (m)	PC I H-90 cm				PC I H-125 cm				PC I H-160 cm				PC I H-170 cm				PC I H-210 cm			
	Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)		
	V _{DL}	V _{LL}	V _{Ult}		V _{DL}	V _{LL}	V _{Ult}		V _{DL}	V _{LL}	V _{Ult}		V _{DL}	V _{LL}	V _{Ult}		V _{DL}	V _{LL}	V _{Ult}	
10	185/45	142	316	768																
11	185/45	156	327	803																
12	185/45	170	337	839																
13	185/45	184	345	872																
14	185/45	198	351	903																
15	185/45	212	357	932																
16	140/45	185	303	797	185/45	239	362	977												
17					185/45	256	367	1008												
18					185/45	271	371	1035												
19					185/45	286	374	1061												
20					185/45	300	378	1087												
21					185/45	315	380	1112												
22					140/45	273	321	944	185/45	382	383	1.199								
23					140/50	285	323	964	185/45	398	386	1.226								
24									185/45	415	388	1.252								
25									185/45	431	390	1.278								
26									185/45	448	392	1.303								
27									185/45	464	394	1.329								
28									185/45	481	395	1.354								
29									185/45	497	397	1.378								
30									140/45	439	333	1.181	185/45	571	398	1472				
31									140/45	453	334	1.201	185/45	589	400	1498				
32													185/45	611	401	1529				
33													185/45	629	402	1555				
34													185/45	647	403	1582				
35													185/45	666	404	1608	185/45	714	404	1.665
36													185/45	684	405	1634	185/45	733	405	1.693
37													185/45	702	406	1659	185/45	752	406	1.720
38													185/50	720	410	1691	185/45	771	410	1.752
39													140/45	637	341	1448	185/45	791	414	1.785
40													140/45	653	342	1470	185/45	814	418	1.823
41													140/45	669	343	1492	185/45	834	422	1.856
42																	185/45	853	427	1.889
43																	185/50	872	431	1.922
44																	185/50	891	435	1.955
45																	185/50	910	439	1.987
46																	185/60	980	443	2.081
47																	185/60	1.001	447	2.116
48																	140/60	895	346	1.782
49																	140/60	913	347	1.806
50																	140/60	931	348	1.832

Note : • Bridge section parameter : Slab thickness = 250mm, Deck Slab = 70mm, and Asphaltic Layer 100mm
• Load Factor Refer to SNI 1725
• Girder for Span above 46m use dapped end section



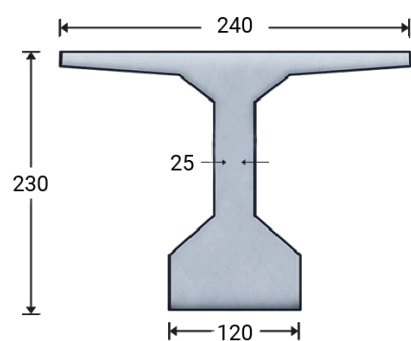
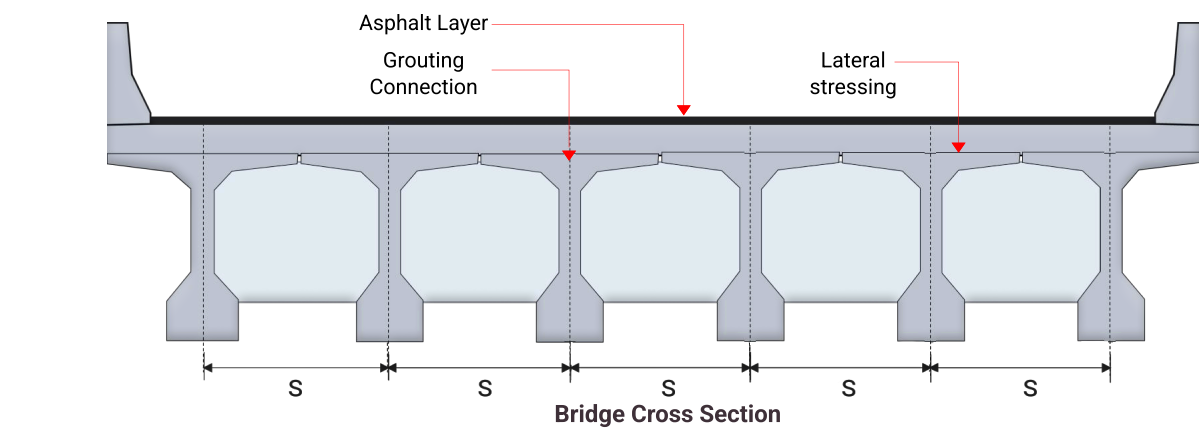
SPECIFICATION

Span	PC U H-120 cm				PC U H-140 cm				PC U H-165 cm				PC U H-185 cm				PC U H-210 cm				PC U H-230 cm									
	Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)			Beam Spacing/fc' (cm/MPa)	Beam Support Reaction (kN)								
		V _{DL}	V _{LL}	V _{ult}		V _{DL}	V _{LL}	V _{ult}		V _{DL}	V _{LL}	V _{ult}		V _{DL}	V _{LL}	V _{ult}		V _{DL}	V _{LL}	V _{ult}		V _{DL}	V _{LL}	V _{ult}	V _{DL}	V _{LL}	V _{ult}			
13	310/45	373	519	1.430																										
14	310/45	400	529	1.485																										
15	310/45	427	538	1.537																										
16	310/45	457	545	1.591																										
17	310/45	487	552	1.644																										
18	310/45	514	558	1.691	310/45	540	558	1.721																						
19	310/45	542	564	1.737	310/45	568	564	1.769																						
20	310/45	569	568	1.782	310/45	597	568	1.815																						
21	310/45	596	573	1.826	310/45	625	573	1.861																						
22	310/45	623	577	1.870	310/45	653	577	1.906																						
23	310/45	650	581	1.912	310/45	681	581	1.950																						
24	270/45	615	502	1.720	310/45	710	584	1.994																						
25					310/45	738	587	2.037	310/45	801	587	2.113																		
26					310/45	773	590	2.088	310/45	831	590	2.158																		
27					310/50	801	592	2.130	310/45	861	592	2.202																		
28					310/50	829	603	2.188	310/45	890	603	2.261																		
29					270/50	781	538	2.001	310/45	920	617	2.326																		
30					270/60	807	550	2.057	310/50	950	631	2.391																		
31									310/60	980	638	2.443																		
32									270/50	928	562	2.230	310/50	1.054	645	2.548														
33													310/50	1.091	652	2.609														
34													310/50	1.122	659	2.662														
35													310/50	1.153	666	2.716														
36													310/50	1.184	673	2.770														
37													310/60	1.215	680	2.823														
38													310/60	1.246	687	2.877														
39													270/60	1.176	604	2.628														
40													270/60	1.205	610	2.676	310/60	1.381	701	3.071										
41													310/60	1.413	708	3.127														
42													310/60	1.446	715	3.182														
43													310/60	1.479	722	3.238														
44													270/60	1.397	635	2.964	310/60	1.557	729	3.345										
45													270/60	1.428	641	3.015	310/60	1.590	736	3.402										
46													310/60	1.623	743	3.458														
47													310/60	1.657	750	3.514														
48													310/70	1.690	757	3.571														
49													310/70	1.723	764	3.627														
50													310/70	1.757	771	3.683														

Note : Based on bridge load refer to SNI 1725 : 2016 and assume bridge section parameter : 250 mm for CIP Slab, 70 mm concrete deck slab and 50 mm (+50 mm / -0 mm) asphaltic layer

PRODUCT SHAPE

► PC Bulb Tee Girder



PC Bulb Tee H-230

Area : 13.677,5 cm²
Inertia : 104.700.914 cm⁴

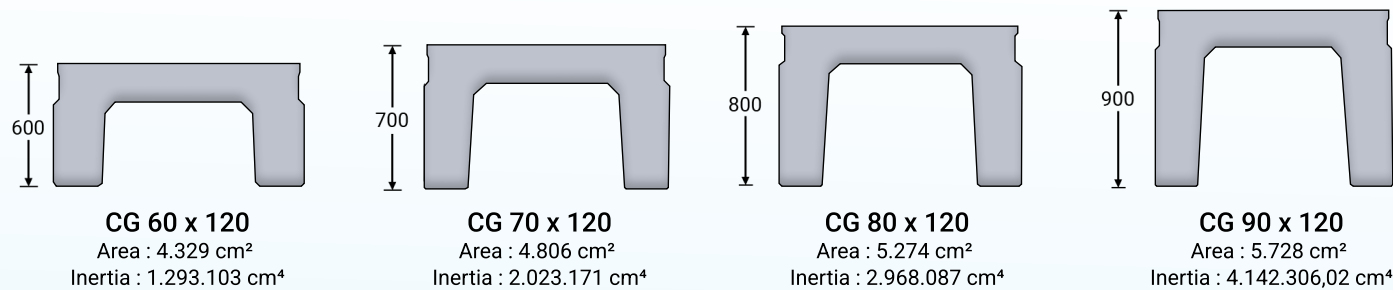
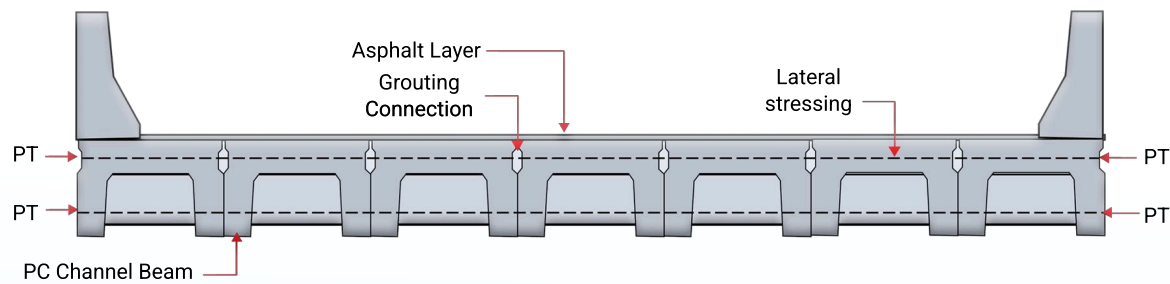
SPECIFICATION

Span (m)	Bulb Tee Beam		Beam Support		
	Spacing/fc' (cm/MPa)	Weight (ton/pcs)	Reaction (kN)		
			V _{DL}	V _{LL}	V _{ult}
55	250/70	238	1.727	648	3.358
56	250/70	241	1.755	653	3.403
57	250/70	245	1.782	659	3.448
58	250/70	248	1.810	664	3.492
59	250/70	252	1.838	669	3.537
60	250/70	255	1.865	675	3.582

Note : Based on bridge load refer to SNI 1725 : 2016 and assume bridge section parameter using 200 mm topping slab and 50 mm (+50 mm / -0 mm) asphaltic layer

PRODUCT SHAPE

► PC Channel Girder

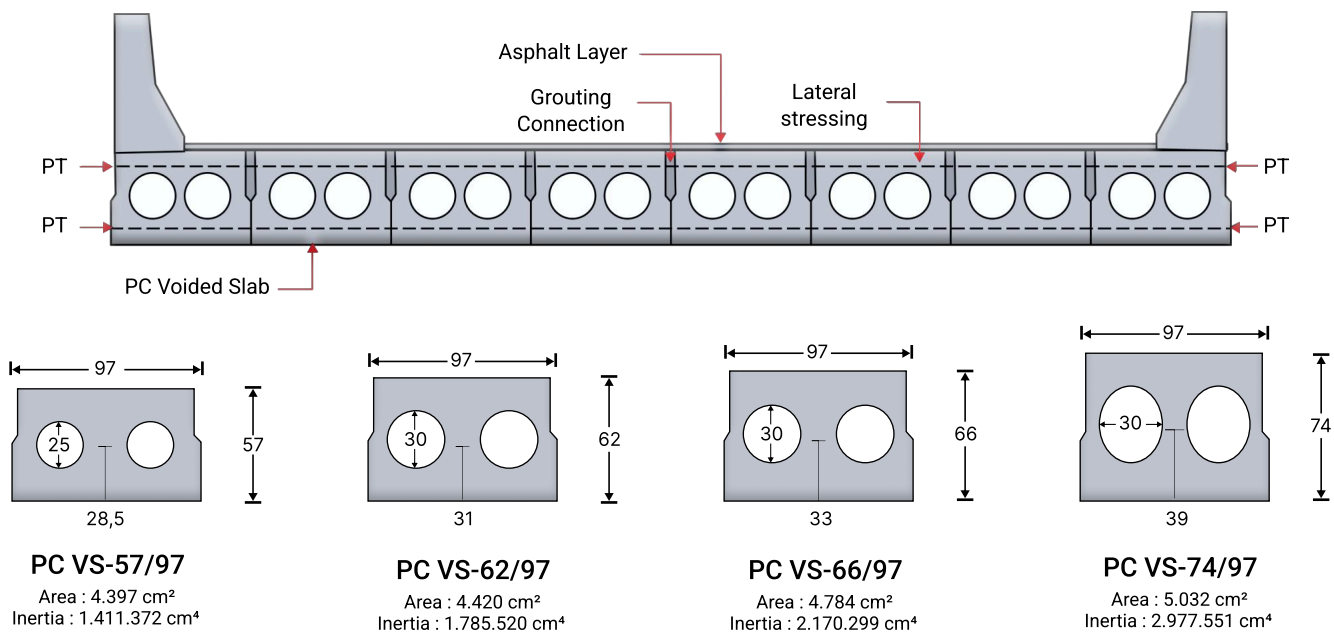


SPECIFICATION

Type	Weight (Ton/m)	fc' (MPa)	Span (m)															
			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CG 60 x 120	1,08	50-70	●	●	●	●	●	●	●	●								
CG 70 x 120	1,20	50-70	●	●	●	●	●	●	●	●	●	●	●					
CG 80 x 120	1,31	50-70	●	●	●	●	●	●	●	●	●	●	●	●	●			
CG 90 x 120	1,43	50-70	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

PRODUCT SHAPE

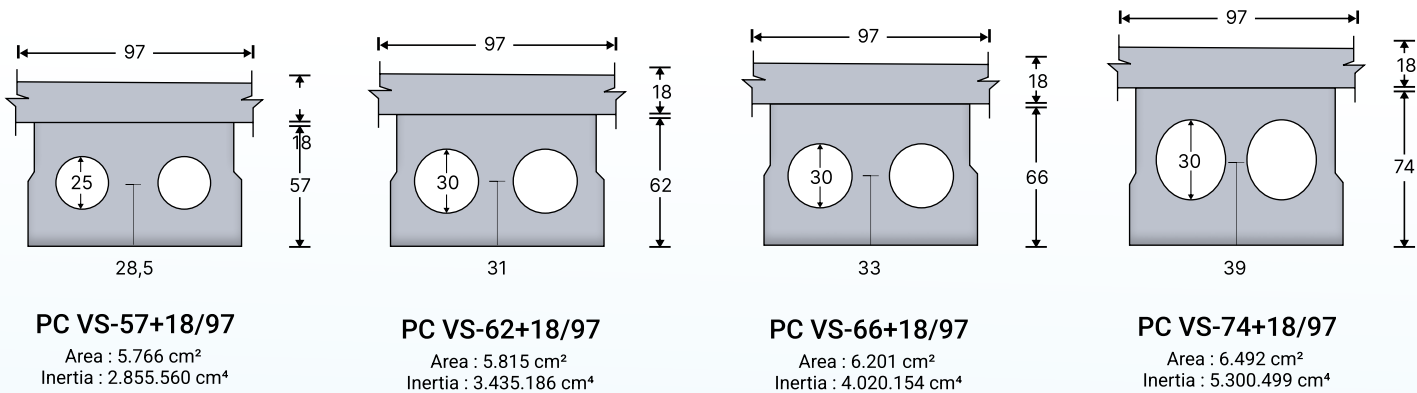
► PC Voided Slab



SPECIFICATION

Type	Weight (Ton/m)	fc' (MPa)	Span (m)															
			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
PC VS 57/97	1,10	50-70	●	●	●	●	●	●										
PC VS 62/97	1,11	50-70	●	●	●	●	●	●	●									
PC VS 66/97	1,20	50-70	●	●	●	●	●	●	●	●								
PC VS 74/97	1,26	50-70	●	●	●	●	●	●	●	●	●	●						

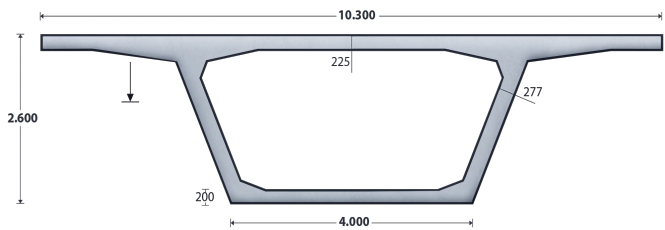
Optional with Overtopping Slab



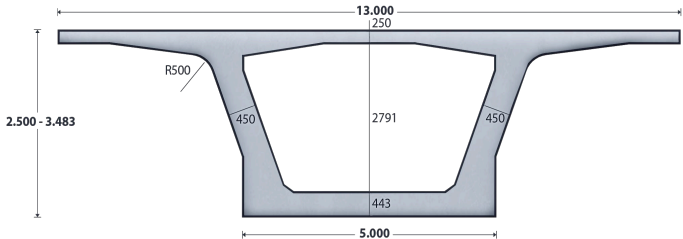
SPECIFICATION

Type	Weight (Ton/m)	fc' (MPa)	Span (m)															
			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
PC VS 57+18 /97	1,44	50-70	●	●	●	●	●	●	●	●	●	●	●					
PC VS 62+18/97	1,45	50-70	●	●	●	●	●	●	●	●	●	●	●	●				
PC VS 66+18/97	1,55	50-70	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
PC VS 74+18/97	1,62	50-70	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

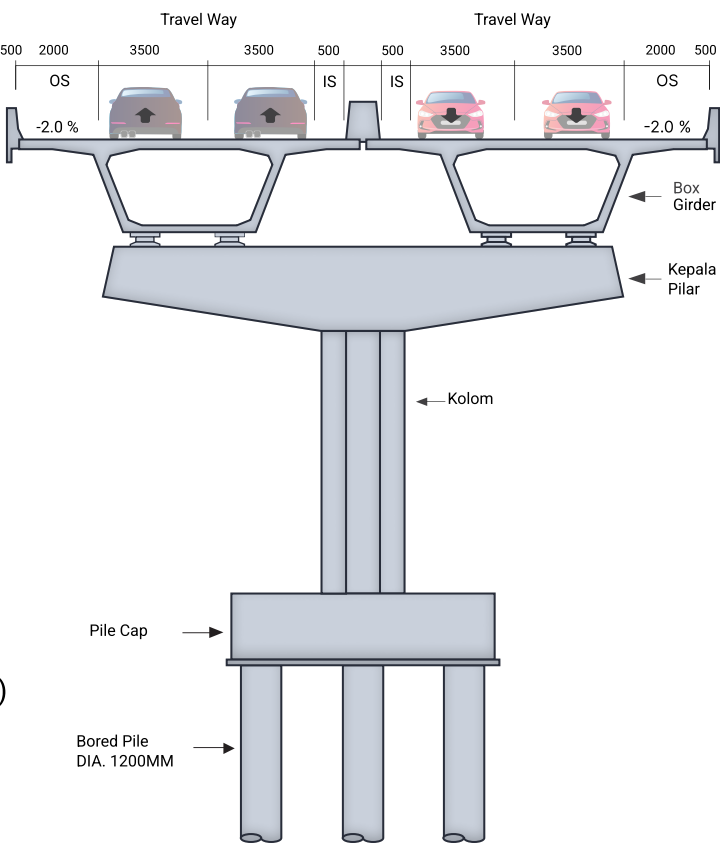
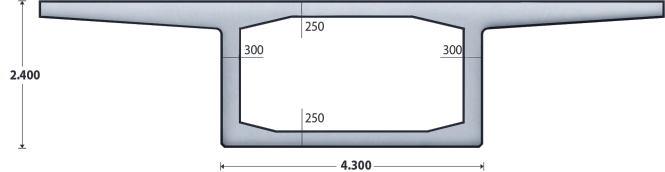
SPAN UP TO 50 m (HIGHWAY & LIGHT RAIL TRAIN)



SPAN UP TO 100 m (HIGHWAY & LIGHT RAIL TRAIN)



SPAN UP TO 40 m (RAILWAY BRIDGE - RM1921 LOAD)



PRODUCT APPLICATION

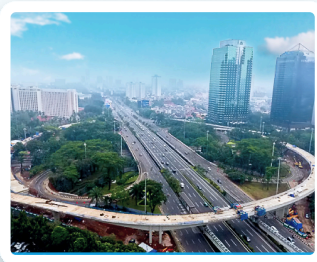
DIMENSION | PC BOX GIRDER

Load	Span (m)	Height (m)	Width of slab (mm)		Slab Thickness (mm)		Web Thickness (mm)	Installation Method
			Top	Bottom	Top	Bottom		
Highway & Light Rail Train	40 - 50	2,6	10.300	4.000	225	300	277	Span by Span Balance Cantilever
Highway & Light Rail Train	50 - 100	2,5 - 3,5	13.00	5.000	225	250 - 443	450	
Railway Bridge RM-1921	30 - 40	2,4	10.300	4.300	300	250	300	

PROJECT REFERENCE



Tol AP Pettarani
REAAA Mino Best Project
Award 2022



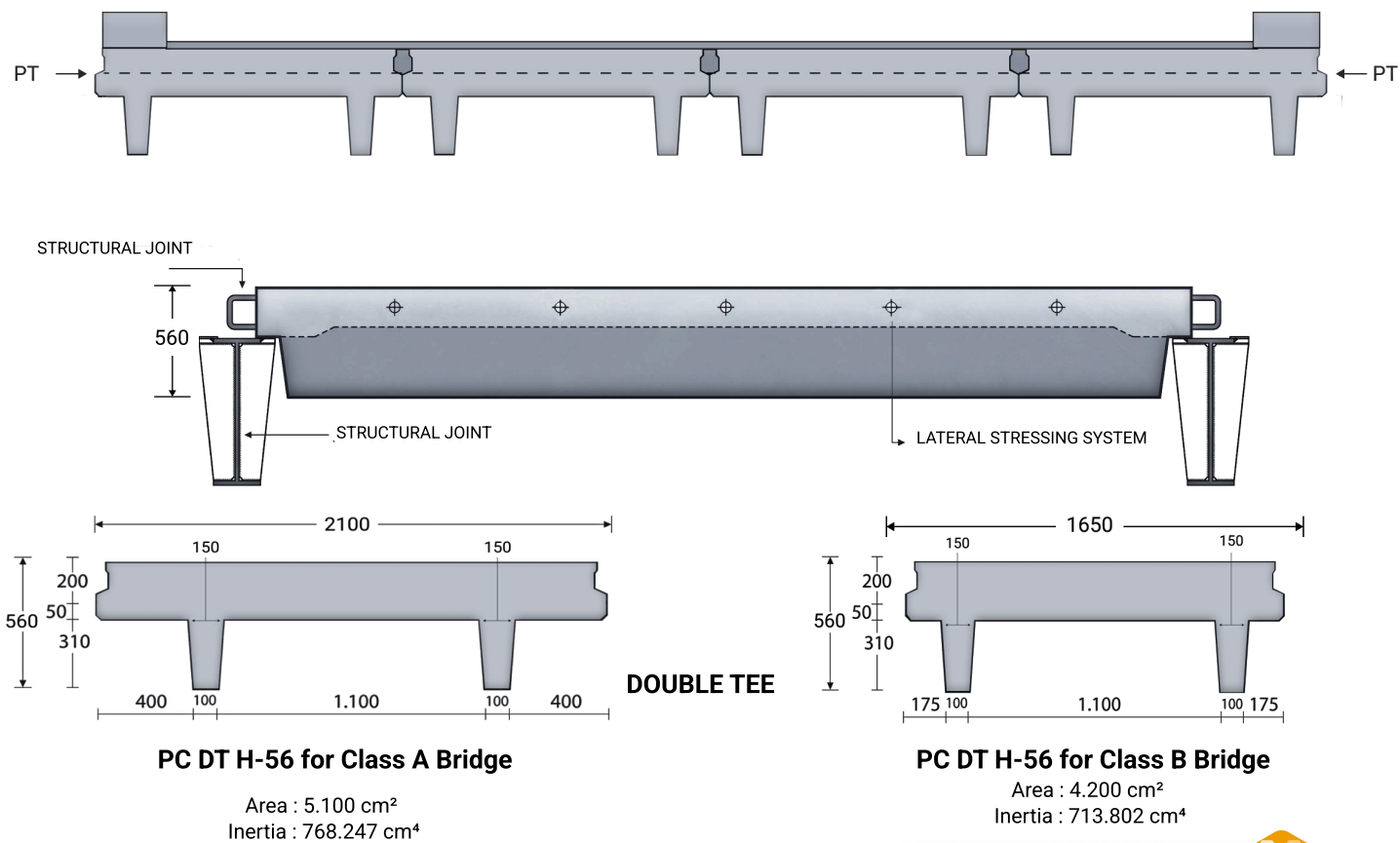
Simpang Susun Semanggi
Special Span 80m with Curve



Mass Rapid Transit (MRT) Jakarta
Phase I (CP101 - CP103)



Jalan Layang Kereta Api
Jalur Ganda
Ruas Medan - Araskabu



Note :
CLASS A : 7 meter width of traffic lane with additional 1 meter kerb in each side of bridge
CLASS B : 6 meter width of traffic lane with additional 0,5 meter kerb in each side of bridge

Patent Number : ID P0026747

Certified by The Ministry of Law
and Human Right
Republic of Indonesia

CUSTOMIZE BRIDGE PRODUCTS

Precast Slab Bridge for
Steel or Concrete Girder

Pretention
Precast Pile Slab

Segmental or Monolit
"T" Beam

Segmental or Monolit
Hollow Beam

PRODUCT APPLICATION

PC Voids Slab
or PC Chanel Girder

PC I or PC U Girder

Double Tee Slab
for Truss Bridge

Bulb Tee Girder



RETAINING WALL

DESCRIPTION

Retaining Wall Concrete products come in various types, such as Flat and Corrugated Sheet Piles, PC Walls, and Gravity Walls. These retaining wall concrete products are used as permanent retaining wall structures, such as quay walls, revetments, jetties, breakwaters, reclamation walls, levees, water control gates, building basements, bridge abutments, and more.

Initially, PC sheet piles were produced only in a flat (rectangular) shape. The product then evolved with a corrugated cross-section. The corrugated cross-section has better properties, resulting in longer products that can be used for retaining wall structures with higher freestanding capabilities.

PC Wall products are produced using the spinning method to create hollow square sections due to centrifugal force. These sections have high moment resistance, making them a substitute for conventional diaphragm wall structures. The product features grooves that are filled with grout to seal the joints between PC Walls, preventing water leakage.

Another product, the Gravity Wall, was developed as an alternative retaining wall structure that can be quickly assembled without using special tools. Gravity wall modules are arranged to utilize their own weight to withstand soil pressure. The preference for using concrete sheet piles is due to the convenience and low cost in construction/installation work.

Types of Retaining Wall

Corrugated Sheet Piles

Flat Sheet Piles

- Prestressed Flat Sheet Piles
- Reinforced Flat Sheet Piles

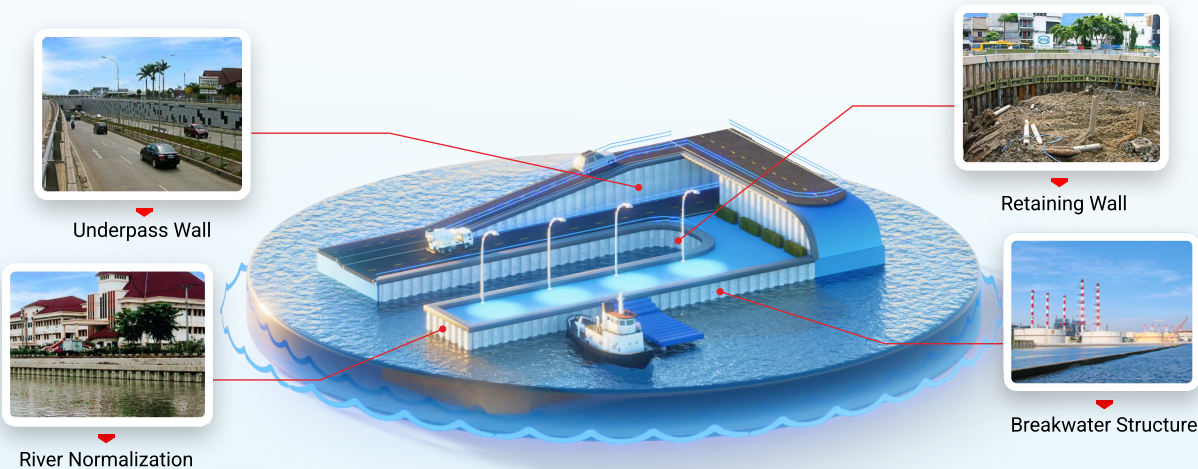
PC Wall

Gravity Wall

DESIGN REFERENCE

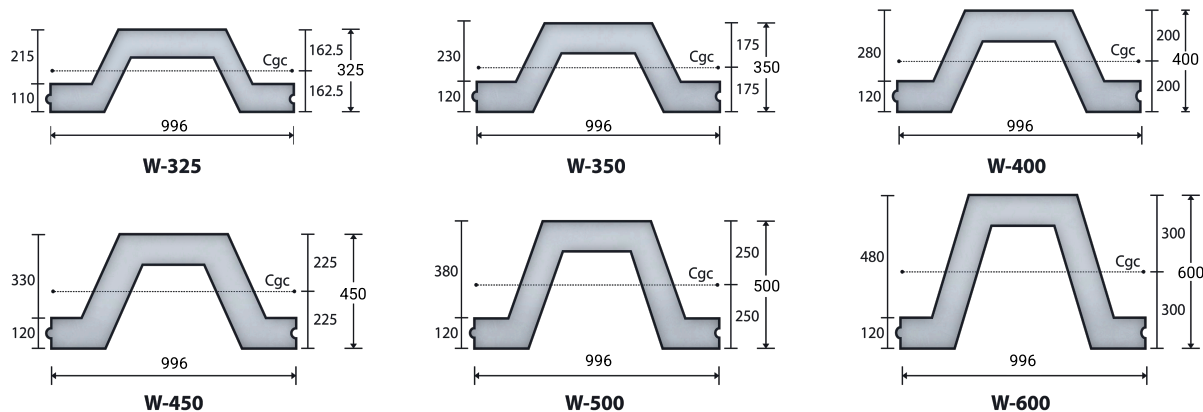
Design	SNI 6880	Structural Concrete Specification
	ACI 543R	Design, Manufactured and Installation
	JIS A 5325 - 1981	Prestressed Concrete Sheet Piles
	SNI 2847	Reinforced Concrete Sheet Piles
	SNI 9157	Indonesian Standard Code for Concrete
		Specification for prestressed Concrete Corrugated Sheet Pile

PRODUCT APPLICATION



PRODUCT SHAPE

► Corrugated Prestressed Concrete Sheet Piles



SPECIFICATION

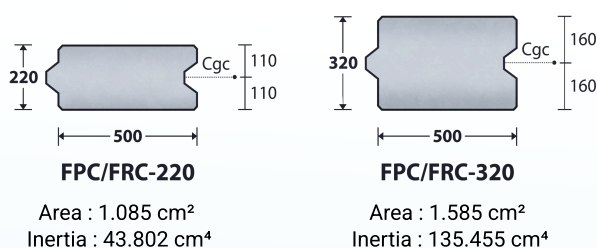
Concrete Compressive Strength f_c' Min = 62 MPa

Type	Thickness (mm)	Width (mm)	Cross Section (cm ²)	Section Inertia (cm ⁴)	Unit Weight (kg/m)	Class	Moment (kN.m)		Length (m)
							Crack	Break	
W-325	110	996	1.315	134.264	329	A	120		8 - 15
						B	130		8 - 16
W-350	120	996	1.468	169.432	368	A	160		9 - 17
						B	170		10 - 17
W-400	120	996	1.598	248.691	400	A	200		10 - 18
						B	230		11 - 19
W-450	120	996	1.835	353.363	459	A	270		11 - 19
						B	310		12 - 21
W-500	120	996	1.818	462.373	455	A	350		12 - 22
						B	400		13 - 24
W-600	120	996	2.078	765.907	520	A	500		14 - 25
						B	590		15 - 27

Note : Length of Concrete Corrugated Sheet Piles may exceed usual standard whenever lifted in certain position

PRODUCT SHAPE

► Flat Concrete Sheet Piles



SPECIFICATION

Type	Class	f_c'	Moment (kN.m/0,5 m)		Length* (m)
			Crack	Break	
FRC-220	A	28	31	39	4 - 7
	B	42	46	58	4 - 7
FRC-320	A	28	49	61	4 - 8
	B	42	73	91	4 - 9

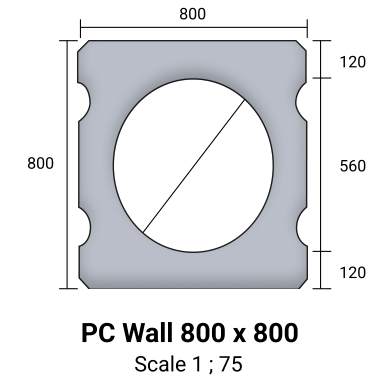
Concrete Compressive Strength f_c' = 42 MPa

Type	Class	Moment (kN.m/0,5 m)		Length* (m)
		Crack	Break	
FPC-220	6S-A	33	54	4 - 9
	8S-A	38	67	4 - 10
	10S-A	42	78	4 - 10
	6S-B	44	82	4 - 11
	8S-B	51	96	4 - 11
	6S-C	53	99	4 - 12
	10S-B	58	106	4 - 12
	8S-C	62	113	4 - 13
FPC-320	6S-A	61	84	4 - 10
	8S-A	68	107	4 - 11
	10S-A	76	129	4 - 12
	6S-B	78	137	4 - 12
	12S-A	82	149	4 - 12
	14S-A	89	167	4 - 12
	8S-B	90	171	4 - 13
	6S-C	93	179	4 - 13
	16S-A	95	184	4 - 13
	10S-B	102	200	4 - 13
	8S-C	109	216	4 - 14
	12S-B	113	223	4 - 14
	14S-B	123	242	4 - 15
	10S-C	124	244	4 - 15
	16S-B	133	257	4 - 15

Note :
A = PC Strand $\varnothing$ 9,53 mm
B = PC Strand $\varnothing$ 12,7 mm
C = PC Strand $\varnothing$ 15,2 mm

PRODUCT SHAPE & SPECIFICATION

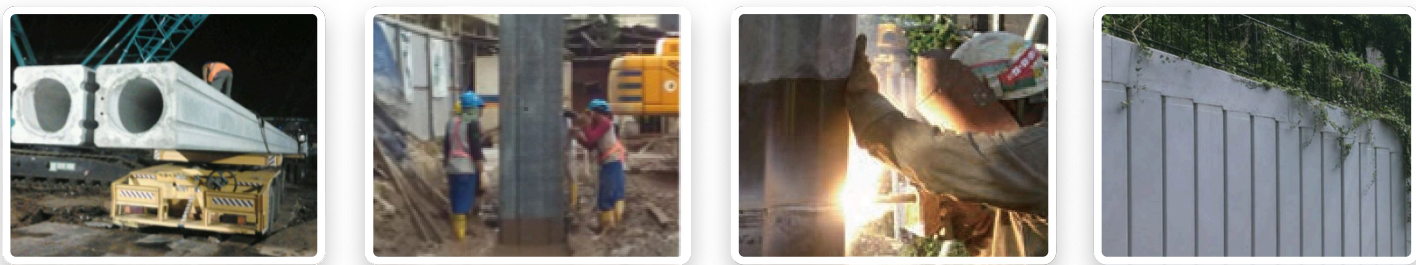
► PC Wall



Concrete Compressive Strength $f_c' = 50 \text{ MPa}$									
Type	Dimension (mm)	Cross Section (cm ²)	Section Inertia (cm ⁴)	Unit Weight (kg/m)	Class	Moment (kN.m)		Allowable Compression (ton)	Length (m)
						Crack	Ultimate		
PCW 800	800 x 800 Void Ø560	3768	2834701	942	A	686	883	580	6 - 22
					B	834	1275	550	6 - 24
					C	981	1618	530	6 - 24
					D	1079	1961	515	6 - 24

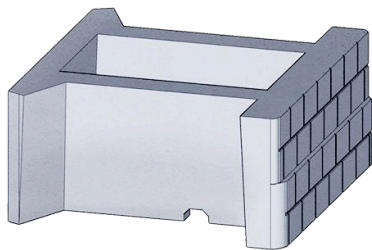
Note : Length of PC Wall may exceed usual standard whenever lifted in certain position

PRODUCT APPLICATION

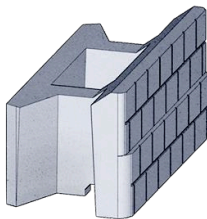


PRODUCT SHAPE

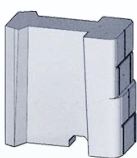
► Gravity Wall



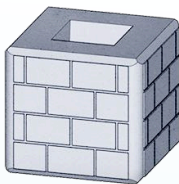
GW120.110, GW240.110,
GW240.160, GW240.220



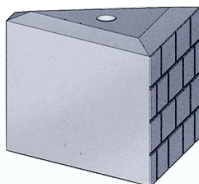
GWT120.110,
GWT240.110



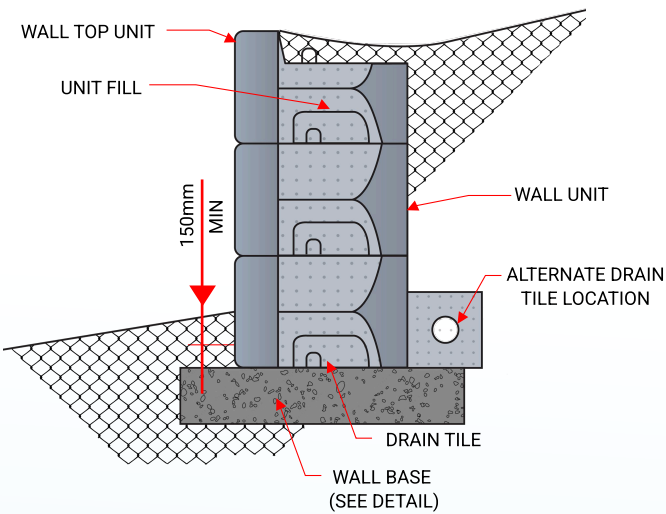
GW 60.110



GW 90°



GW 45°



SPECIFICATION

Concrete Compressive Strength $f_c' = 62,5 \text{ MPa}$			
No	Modul Type	Dimension L x W x H (m)	Modul Weight (ton)
1	GW-45°	1,2 x 1,2 x 1,0	1.95
2	GW-90°	1,2 x 1,2 x 1,0	2.60
3	GW60.110	1,1 x 0,6 x 1,0	0.98
4	GW120.110	1,2 x 1,1 x 1,0	1.77
5	GW240.110	2,4 x 1,1 x 1,0	3.45
6	GW240.160	2,4 x 1,6 x 1,0	3.94
7	GW240.220	2,4 x 2,2 x 1,0	4.53
8	GWT120.110	1,2 x 1,1 x 1,0	1.53
9	GWT240.110	2,4 x 1,1 x 1,0	3.01

PRODUCT APPLICATION





HYDRO STRUCTURE CP

DESCRIPTION

Concrete products classified under Hydro Structures include concrete pipes, U-Ditches, Box Culverts, Aquaponds, infiltration wells, and sabo dams. The main product in this category is the concrete pipe, which consists of pressure pipes and low-pressure pipes. Pressure pipes can be used as raw water transmission pipes as part of a water treatment plant, requiring very high resistance to water pressure. Low-pressure pipes are used for sewerage, water distribution, etc.

The pressure pipes are produced using a vibro-pressed centrifugal system to achieve high-density concrete with low permeability and low shrinkage. The low-pressure pipes are produced using reinforced concrete with two production systems: vertical and centrifugal methods. The vertical method is used for large-diameter pipes, while the centrifugal system is used for pipes with diameters ranging from 400 mm to 2000 mm. U-Ditch and Box Culvert products are commonly used as drainage channels, with dimensions varying up to large sizes. The Aquapond product is designed for temporary storage of excess water flow to prevent flooding during rain. The stored water is then channeled to drainage systems after the rain subsides, making it ready to accommodate the next water flow.

Infiltration wells are used to infiltrate water into the ground to reduce rainwater runoff into drainage systems, preventing flooding. This product consists of segmental ring components for easy manual installation.

The sabodam product is a type of dam that functions to store and control sediment floods, as well as direct debris flow to follow the river's course. Using modular precast concrete, the sabo structure has excellent abrasion and impact resistance, extending the dam's lifespan. This product is a result of innovation that has been patented with the Directorate General of Intellectual Property of the Ministry of Law and Human Rights since 2019, with two patent holders: the Directorate of Water Resources Engineering, Ministry of Public Works and Housing (PUPR), and WIKa Beton.

Types of Hydro Product

Concrete Pipe

- Reinforced Concrete Pipe
- Reinforced Concrete Cylinder Pipe



U-Ditch



Box Culvert



Aquapond



Infiltration Well



Sabodam Modular



DESIGN REFERENCE

	Concrete Pipe	
Design	JSWAS A2 - 2018	Jacked concrete reinforced pipe for sewage (ID 800-3000mm)
	JSWAS A6 - 2000	Jacked concrete reinforced pipe for sewage
	AWWA M9 2nd EDITION - C300	Manual of water supply practice
	CPAA DESIGN MANUAL - 2013	Jacking design guidelines
	BS EN 639 - 1995	Common requirements for concrete pressure pipes including joints and fittings
	BS EN 641 - 1995	Reinforced concrete pressure pipes, cylinder type, including joints and fittings
	BS EN 1916 - 2002	Concrete pipes and fittings, unreinforced, steel fiber, and reinforced
	SNI 6880 : 2016	Structural Concrete Specification

Method of Installation

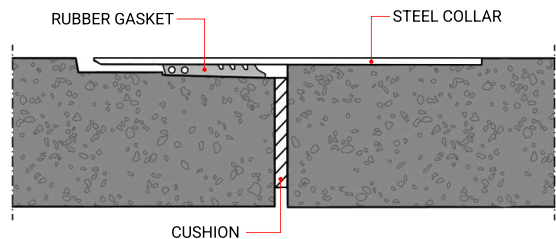
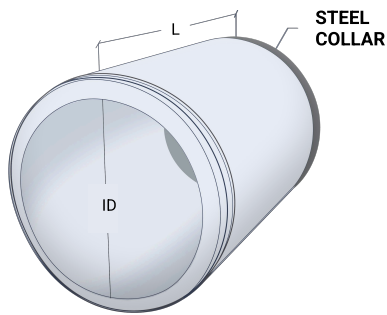
- Jacked with Micro-tunneling conduits
- Open Cut/Trench or embankment conduits

Joint System

- Reinforced Concrete Pipe : Rubber Gasket at Socket-spigot
- Reinforced Concrete Cylinder Pipe : Rubber Gasket & Welding at Socket-spigot

PRODUCT SHAPE & SPECIFICATION

Reinforced Concrete Pipe

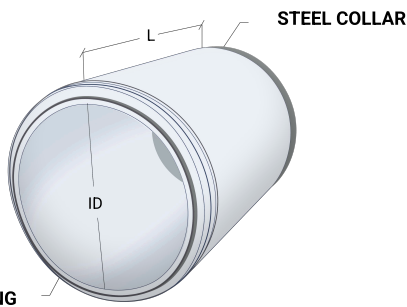


PIPE JOINT SYSTEM

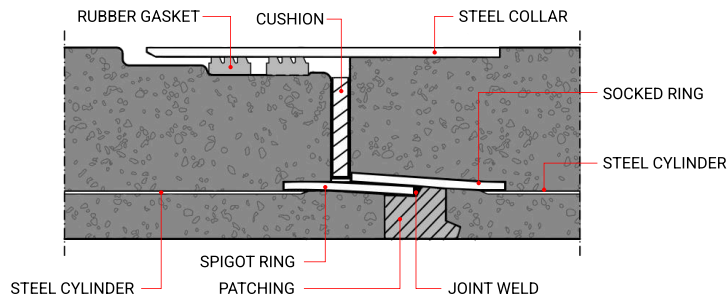
Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)	Wall Thickness (t) (mm)	Effective Length (L) (m)	Concrete Strength (fc') (MPa)	Theoretical Weight		Cracking Load		Breaking Load	
					L - 1.2 m (kg)	L - 2.43 m (kg)	Class-1 (kN/m)	Class-2 (kN/m)	Class-1 (kN/m)	Class-2 (kN/m)
400	524	62	1.2 / 2.43	50 / 70	270	547	39,3	78,5	58,9	118
450	584	67	1.2 / 2.43	50 / 70	326	661	42,2	84,4	63,8	127
600	760	80	1.2 / 2.43	50 / 70	513	1.038	46,1	92,2	69,7	138
800	960	80	1.2 / 2.43	50 / 70	664	1.344	35,4	70,7	57,9	143
1.000	1.200	100	1.2 / 2.43	50 / 70	1.037	2.099	41,2	82,4	71,6	124
1.200	1.430	115	1.2 / 2.43	50 / 70	1.425	2.886	44,2	88,3	86,3	133
1.500	1.780	140	1.2 / 2.43	50 / 70	2.164	4.382	50,1	101	110	151
1.800	2.120	160	1.2 / 2.43	50 / 70	2.956	5.985	55,9	112	134	168
2.000	2.350	175	1.2 / 2.43	50 / 70	3.587	7.264	58,9	118	142	177
3.500	4.050	275	2.43	50 / 70	-	19.813	73,6	148	177	221

PRODUCT SHAPE & SPECIFICATION

Reinforced Concrete Cylinder Pipe



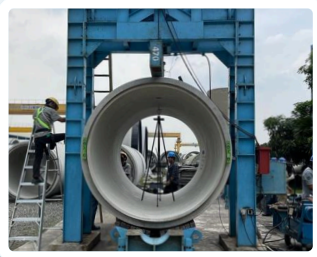
SPIGOT RING



PIPE JOINT SYSTEM

Inner Diameter (mm)	Outer Diameter (mm)	Wall Thickness (mm)	Effective Length (m)	Concrete Strength (MPa)	Theoretical Weight (Kg)	Water Pressure	
						Internal (Bar)	External (Bar)
1.200	1.430	115	3	40 / 60	3.563	4 / 6 / 9	2
1.500	1.780	140	3	40 / 60	5.410	4 / 6 / 9	2
1.650	1.950	150	3	40 / 60	6.362	4 / 6 / 9	2
1.800	2.120	160	3	40 / 60	7.389	4 / 6 / 9	2
2.000	2.350	175	3	40 / 60	8.968	4 / 6 / 9	2

PROJECT REFERENCE



Spam Jatiluhur

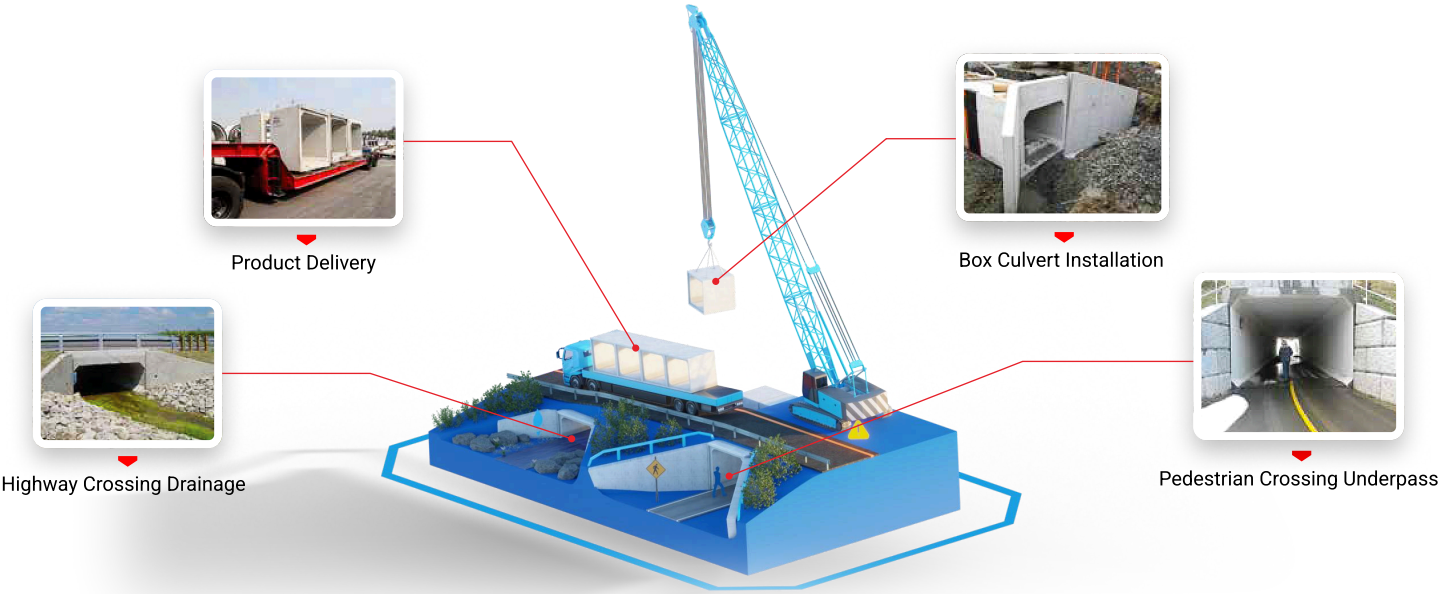
Sodetan Ciliwung - Jakarta

DESIGN REFERENCE

► U-Ditch & Box Culvert

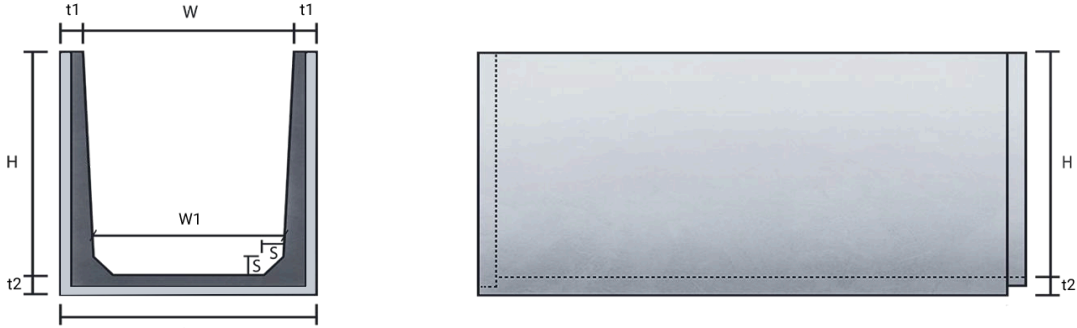
Design	AASHTO- LRFD	Design Code for Box Culvert
	SNI 2847 :2019	Indonesian Standard Code for Concrete

PRODUCT APPLICATION



PRODUCT SHAPE

► U-Ditch



SPECIFICATION

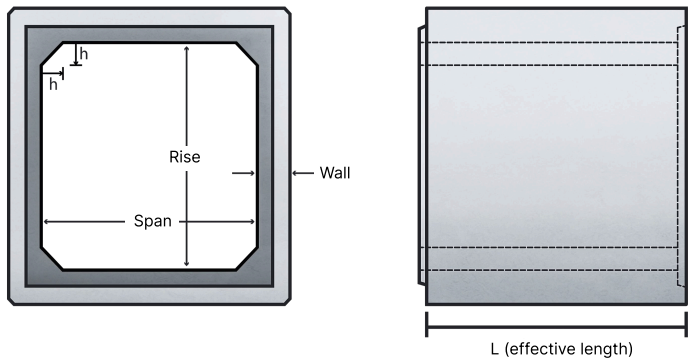
Concrete Compressive Strength $f_c' = 28 \text{ MPa}$

Type W x H x L	Dimension (mm)					Weight (kg/pcs) L = 1.200
	(W)	(H)	(W1)	(t1)	(t2)	
300 x 200 x 1.200	300	200	294	45	60	131
300 x 300 x 1.200	300	300	294	45	60	159
300 x 400 x 1.200	300	400	294	45	60	187
300 x 500 x 1.200	300	500	294	45	60	215
400 x 300 x 1.200	397	300	390	52	70	216
400 x 400 x 1.200	400	400	390	50	70	247
400 x 500 x 1.200	400	500	390	50	70	278
400 x 600 x 1.200	400	600	390	50	70	310
500 x 300 x 1.200	494	300	488	73	70	284
500 x 400 x 1.200	497	400	488	72	70	327
500 x 500 x 1.200	500	500	488	70	70	369
500 x 600 x 1.200	500	600	488	70	70	413
500 x 700 x 1.200	500	700	488	70	70	457
600 x 400 x 1.200	594	400	584	73	70	352
600 x 500 x 1.200	597	500	584	72	70	396
600 x 600 x 1.200	600	600	584	70	70	438
600 x 700 x 1.200	600	700	584	70	70	483
600 x 800 x 1.200	600	800	584	70	70	527
800 x 600 x 1.200	795	600	780	73	70	488
800 x 700 x 1.200	797	700	780	72	70	532

Type W x H x L	Dimension (mm)					Weight (kg/pcs) L = 1.200
	(W)	(H)	(W1)	(t1)	(t2)	
800 x 800 x 1.200	800	800	780	70	70	574
800 x 1.000 x 1.200	800	1.000	780	70	70	664
800 x 1.200 x 1.200	800	1.200	780	70	70	754
1.000 x 800 x 1.200	978	800	900	101	100	974
1.000 x 1.000 x 1.200	1.000	1.000	900	90	100	1.089
1.000 x 1.200 x 1.200	1.000	1.200	900	90	100	1.227
1.000 x 1.400 x 1.200	1.000	1.400	900	90	100	1.365
1.200 x 1.000 x 1.200	1.178	1.000	1.080	106	105	1.266
1.200 x 1.200 x 1.200	1.200	1.200	1.080	95	105	1.386
1.200 x 1.400 x 1.200	1.200	1.400	1.080	95	105	1.536
1.200 x 1.600 x 1.200	1.200	1.600	1.080	95	105	1.686
1.400 x 1.200 x 1.200	1.378	1.200	1.260	121	150	1.877
1.400 x 1.400 x 1.200	1.400	1.400	1.260	110	150	2.015
1.400 x 1.600 x 1.200	1.422	1.600	1.260	99	150	2.141
1.400 x 1.800 x 1.200	1.444	1.800	1.260	88	150	2.253
1.600 x 1.400 x 1.200	1.576	1.400	1.440	132	170	2.431
1.600 x 1.600 x 1.200	1.600	1.600	1.440	120	170	2.578
1.600 x 1.800 x 1.200	1.620	1.800	1.440	110	170	2.720
1.600 x 2.000 x 1.200	1.642	2.000	1.440	99	170	2.845

PRODUCT SHAPE

► Box Culvert



LOAD CLASSIFICATION

Class	Load Type	Loading
A	Pedestrian Load Light	qLL = 500 kg/m2 or PL = 2
B	Duty Truck Heavy	Ton MST - 8 Ton
C	Duty Truck	MST - 10 Ton

Note: MST = Muatan Sumbu Terberat (Heaviest Axle Load Vehicle)

SPECIFICATION

Concrete Compressive Strength $f_c' = 35 \text{ MPa}$

Type Box Culvert	Dimension (mm)					Weight
	Span	Rise	Length	Wall	(h)	
BC.800.800.1200	800	800	1.200	115	70	1.292
BC.800.1000.1200	800	1.000	1.200	115	70	1.430
BC.800.1200.1200	800	1.200	1.200	115	70	1.568
BC.1000.1000.1200	1.000	1.000	1.200	120	100	1.673
BC.1000.1200.1200	1.000	1.200	1.200	120	100	1.817
BC.1000.1400.1200	1.000	1.400	1.200	120	100	1.961
BC.1000.1500.1200	1.000	1.500	1.200	120	100	2.033
BC.1200.1200.1200	1.200	1.200	1.200	135	100	2.223
BC.1200.1400.1200	1.200	1.400	1.200	135	100	2.385
BC.1200.1600.1200	1.200	1.600	1.200	135	100	2.547
BC.1400.1400.1200	1.400	1.400	1.200	150	150	2.925
BC.1400.1600.1200	1.400	1.600	1.200	150	150	3.105
BC.1400.1800.1200	1.400	1.800	1.200	150	150	3.285

Concrete Compressive Strength $f_c' = 35 \text{ MPa}$

Type Box Culvert	Dimension (mm)					Weight
	Span	Rise	Length	Wall	(h)	
BC.1500.1000.1200	1.500	1.000	1.200	160	150	2.842
BC.1500.1500.1200	1.500	1.500	1.200	160	150	3.322
BC.1500.2000.1200	1.500	2.000	1.200	160	150	3.802
BC.2000.1500.1200	2.000	1.500	1.200	250	200	6.240
BC.2000.2000.1500	2.000	2.000	1.200	250	200	6.990
BC.2000.2500.1200	2.000	2.500	1.200	250	200	7.740
BC.2500.2000.1200	2.500	2.000	1.200	300	200	9.420
BC.2500.2500.1200	2.500	2.500	1.200	300	200	10.320
BC.2500.3000.1200	2.500	3.000	1.200	300	200	11.220
BC.3000.2000.1200	3.000	2.000	1.200	300	250	10.455
BC.3000.2500.1200	3.000	2.500	1.200	300	250	11.355
BC.3000.3000.1200	3.000	3.000	1.200	300	250	12.255
BC.3000.3500.1200	3.000	3.500	1.200	300	250	13.155

PROJECT REFERENCE

► U-Ditch



Manyar Smelter Project at Gresik - East Java

► Box Culvert



Single Box Culvert

Double Box Culvert

Utility Box Culvert

PRECAST CONCRETE AQUAPOND

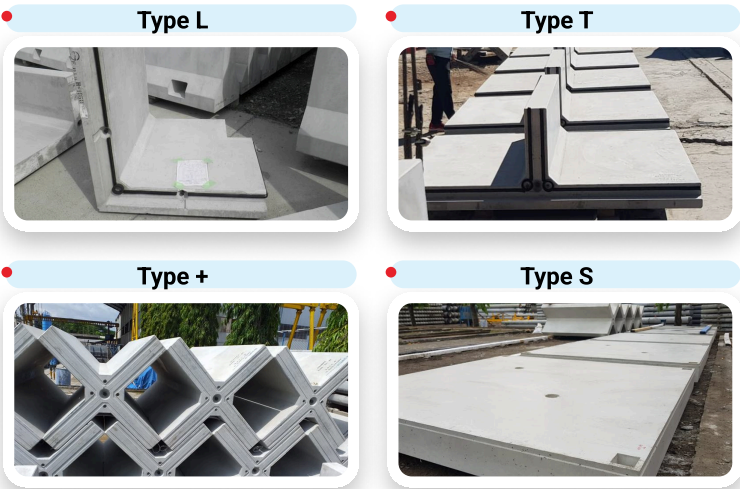
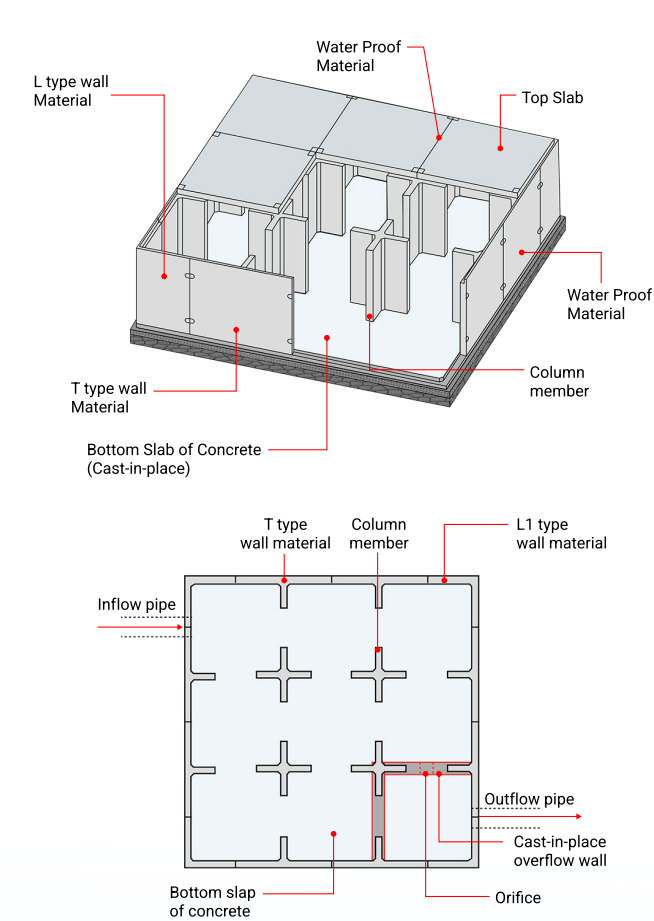
DESCRIPTION

Aquapond is a reservoir building in the ground that is used as a temporary storage for rainwater with the aim of avoiding puddles/flooding on the ground or road surface.

How Aquapond Works :

- 1. When it rains, excess water due to insufficient drainage channel capacity is collected and enters the aquapond.
- 2. When the condition of the drainage channel has returned to normal, the water in the aquapond is pumped out so that the aquapond storage space is empty again and ready to accommodate the excess water again.

SPECIFICATION



Concrete Compressive Strength $f_c' = 35 \text{ MPa}$

No	Modul Type	Dimension (mm)					Modul Weight (ton)
		h (mm)	b1 (mm)	b2 (mm)	t1 (mm)	t2 (mm)	
1	Type L	2.125	1.069	1.069	140	140	1,43
2	Type T	2.125	1.998	490	140	140	1,78
3	Type +	2.050	1.120	1.120	140	140	1,51
4	Type S	-	1.995	1.995	180	180	1,75

PROJECT REFERENCE



Aquapond In The Makassar Governor's Office Complex Area South Sulawesi, Indonesia

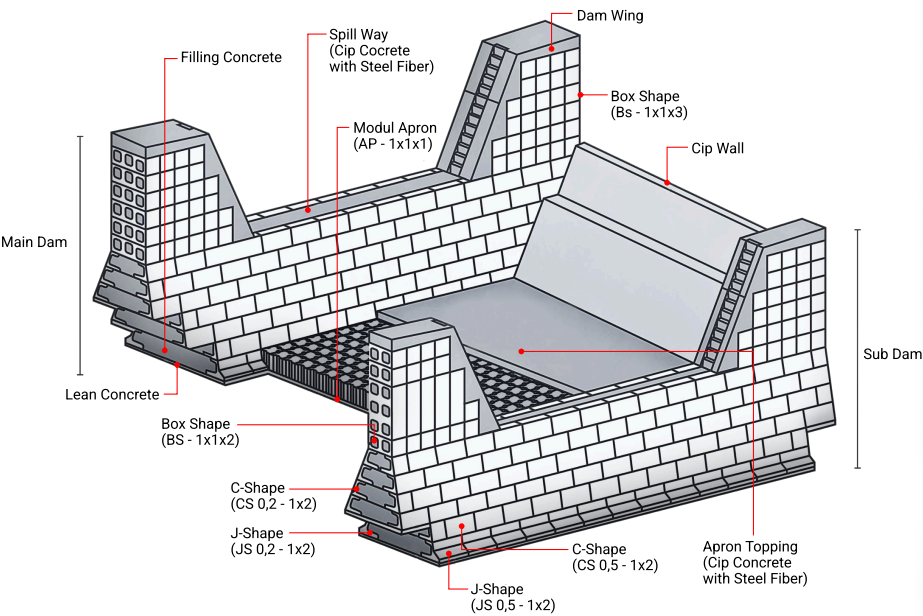
SABODAM MODULAR

DESCRIPTION

Sabo dams are typically constructed in areas highly susceptible to debris flow hazards, which exert significant impact forces. Therefore, sabo structures must be designed and planned to withstand these impact forces. One common cause of damage in conventional concrete sabo dams with low quality is their inability to withstand such impacts.

Precast concrete modular components in Sabo Dams consist of wall modules installed on the outer sides of the dam and apron modules. High-quality concrete result in resistance to impact forces and abrasion on the Sabo modules. The construction process of a sabo dam is simplified by placing precast modular components and then filling the dam body with filler concrete. The shape of the precast modules also serves as the formwork for pouring the filler concrete, significantly reducing the volume of formwork needed. To protect the upper overflow section filled with filler concrete and the apron area, the top portion is coated with fiber-reinforced concrete, making the construction resistant to impacts. The use of precast modular components results in quick, clean construction with fewer labor requirements and a highly reliable structure.

SPECIFICATION



Concrete Compressive Strength $f_c' = 52 \text{ MPa}$

Product Type			Weight (ton)
J-Shape	H 1m x L 1m	(slope 1 : 0,2)	1,4
J-Shape	H 1m x L 2m	(slope 1 : 0,2)	2,9
J-Shape	H 1m x L 1m	(slope 1 : 0,5)	1,5
J-Shape	H 1m x L 2m	(slope 1 : 0,5)	2,9
C-Shape	H 1m x L 1m	(slope 1 : 0,2)	1,1
C-Shape	H 1m x L 2m	(slope 1 : 0,2)	2,1
C-Shape	H 1m x L 1m	(slope 1 : 0,5)	1,2
C-Shape	H 1m x L 2m	(slope 1 : 0,5)	2,4
Box Shape	H 1m x L 1m x W 2m		1,9
Box Shape	H 1m x L 1m x W 3m		2,5
Apron	H 1m x L 1m x W 1m		2,1

Balai Teknik Sabo PUPR and WIKA Beton's
Intellectual Property Right (IPR)

ID. S00201901064
Precast Modules for Modular Sabodam Construction

Precast Concrete Component

Modul J-Shape

Modul C-Shape

Modul Box Shape

Modul Apron

PROJECT REFERENCE



Pilot Project Sabodam Modular, Kediri, East Java

PRECAST CONCRETE INFILTRATION WELL

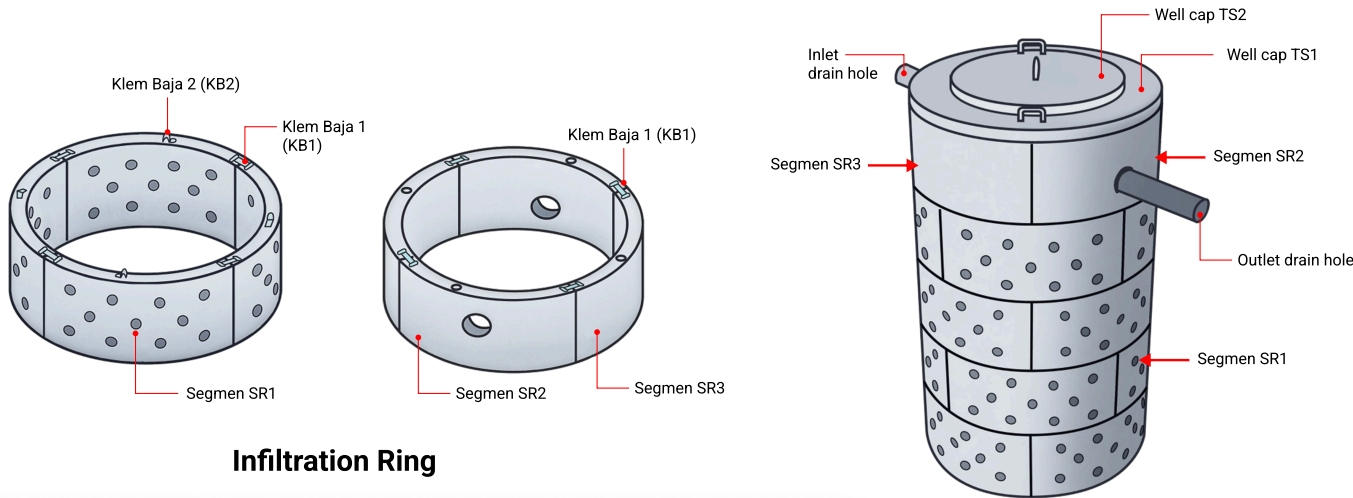
DESCRIPTION

Infiltration wells are artificial infiltration systems designed to collect rainwater resulting from land coverage by buildings, whether from building floors or paved or asphalted yards. These wells function as a reservoir for rainwater, allowing it to seep back into the ground.

The location of infiltration wells should be on flat terrain, not close to waste disposal sites, with a minimum distance of 5 meters from septic tanks and at least 1 meter from building foundations. The maximum depth of infiltration wells is 2 meters below the ground surface, and the minimum water table depth should be 1.5 meters during the rainy season. Additionally, the soil should have a permeability rate of at least 2.0 cm/hour, meaning that a 2 cm water puddle should be fully absorbed within 1 hour. The greater the permeability, the better.

The components of an infiltration well consist of ring components (which can be made whole or segmental) and infiltration well cover components. Water seeps into the ground through holes in the ring walls or through pores if porous concrete is used. After the excavation process, the bottom of the well is lined with fibers, and the ring and cover components are installed step by step to protect the excavation walls. Precast components are made light enough to be lifted by workers, ensuring a quick, neat, and reliable installation process.

SPECIFICATION



Infiltration Ring

Concrete Compressive Strength $f_c' = 19 \text{ MPa}$

No	Infiltration Well Diameter	Product Name	Thickness (mm)	Height (mm)	Diameter (mm)	Weight (kg)
1	SRS OD94/ID80	Segmen SR1	70	400	-	43
		Segmen SR2	70	400	-	43
		Segmen SR3	70	400	-	45
		Well Cap TS1	80	-	940	79
		Well Cap TS2	60	-	600	39
2	SRS OD114/ID100	Segmen SR1	70	400	-	53
		Segmen SR2	70	400	-	54
		Segmen SR3	70	400	-	56
		Well Cap TS1	80	-	1.140	101
		Well Cap TS2	60	-	800	70

Optional :
Infiltration ring with porous concrete



INSTALLATION METHOD



BUILDING AND HOUSING CP



DESCRIPTION

Precast concrete products for building components and precast houses include beams, columns, hollow core slabs, slabs/half slabs, stairs, and facades. Using a comprehensive precast system for building structures can save construction time. This is because mechanical, electrical, plumbing, and architectural work can be carried out simultaneously with the erection of precast structural components. The installation of all precast components can be done 24/7. This system also minimizes environmental impact caused by the construction process.

WIKA Beton also has a column and beam connection system for earthquake-resistant buildings called the PRESSS (Precast Seismic Structural System). For floor structures, WIKA Beton provides hollow core slab products with dimensional variations for spans up to 16 meters. This product is suitable for use in apartment floors, offices, shopping centers, and warehouses.

In addition to building components, WIKA Beton offers a knock-down precast house system that allows for quick assembly and has been tested for earthquake resistance. The product components consist of foundations, sloofs, columns, and ring beams. The installation process uses a connection system that is easy, fast, efficient, and can be done without heavy equipment.

Product Types

Floor Component

- Hollow Core Slab
- Half/Full Slab



Building Structure Component

- Precast Beam
- Precast Column



Precast House

- Beam, Column, Wall, and Foundation



DESIGN REFERENCE

► Precast Building

Design

SNI 2847 : 2019	Indonesian Standard Code for Concrete Building Structural
SNI 6880 : 2016	Structural Concrete Specification
SNI 1727-2013	Minimum Loads for Building Design and Other Structures
SNI 1726 : 2019	Indonesian Standard Code for Earthquake Resistance Planning for Building and Non-Building Structures
SNI 7833 : 2012	Indonesian Standard Code for Precast Concrete and Prestressed Concrete for Buildings

PROJECT REFERENCE



TNI/Polri Tower Housing – Jakarta
6 floor ; 5.000 m² ; 3 month (Structure works)
Precast Column, Beam & HCS
with PRESS System



St Carolus Borromeus Hospital – Jakarta
12 floor ; 25.000 m² ; 4,5 month (Structure works)
Precast PC wall for basement, Column, Beam &
HCS with PRESS System



Paspampres Tower Housing – IKN
12 floor ; 10.000 m² ; 2 month (Structure works)
Precast Column, Beam & Full Slab

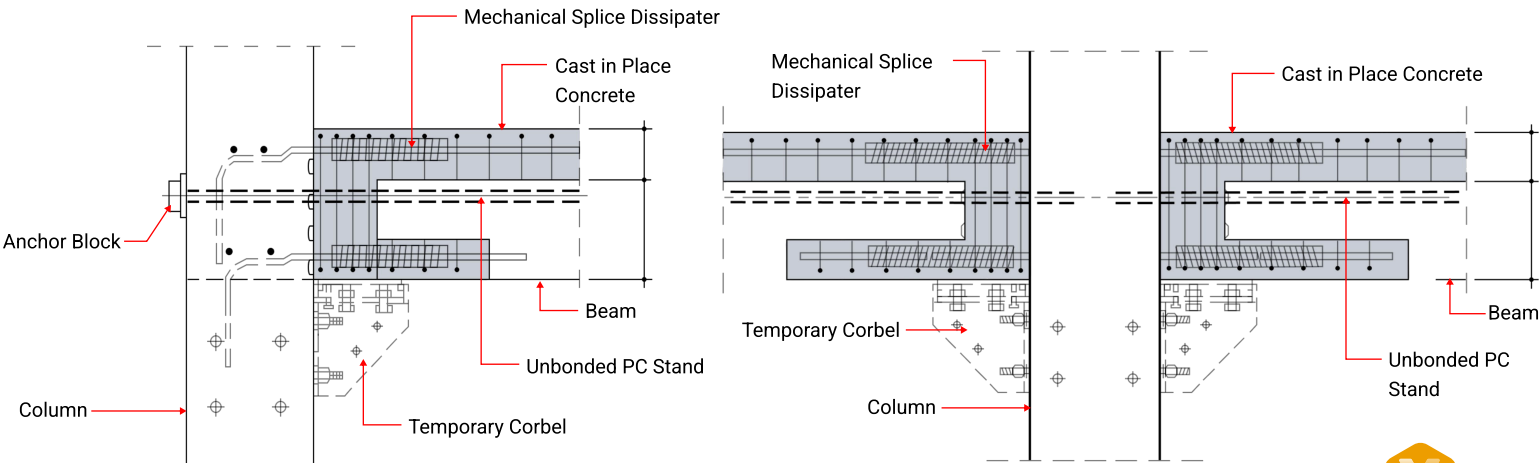
Joint System

Precast Seismic Structural System (Presssindo System)

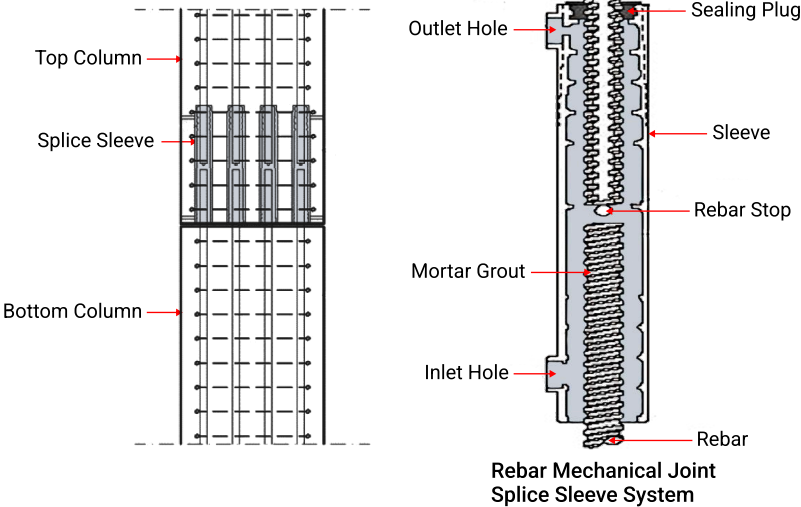
Registered Patent ID. S-00 2020 02178

Earthquake-Resistant Precast Building System Using Unbounded Prestressing and Spiral Dissipaters

This system applies unbonded post-tensioning, making the structure flexible and capable of returning to its original position (self-centering) after shaking during an earthquake.



Joint Column



Rebar Mechanical Joint Splice Sleeve System

ID. S-00 2020 02178

Earthquake-Resistant Precast Building System Using Unbounded Prestressing and Spiral Dissipaters



PRESSS Column-Joint Certification at Laboratorium Pengujian Pusat Penelitian dan Pengembangan Perumahan dan Pemukiman - Bandung, West Java

INSTALLATION METHOD



Column Installation



Beam Installation



Hollow Core Slab Floor



Stair Installation



Anchor Block and Prestress for PRESSS Column-Beam Joint



Facade Installation



Building Architectural Finishing

Design

SNI 2847 : 2019

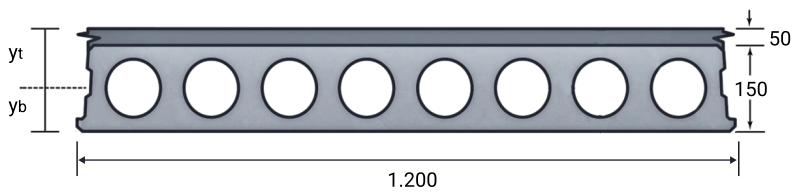
Indonesian Standard Code for Concrete Building Structural

SNI 6880 : 2016

Structural Concrete Spesification

PRODUCT SHAPE

► HCS 150



No	Properties	Notation	Unit	No Topping	Topping
1	Area	A	cm ²	1.117,5	--
2	Cgc to Bottom fiber	y _b	cm	7,4	10,6
3	Cgc to Top fiber	y _t	cm	7,6	9,4
4	Moment of Inertia	I _x	cm ⁴	28.987	66.028
5	Concrete Shear Width	b _w	cm	34,7	34,7
6	Unit weight of HCS	w	kg/m'	268,2	412,2
7	Joint fill weight	q	kg/m'	13,0	13,0

Table of Superimposed load* (kN/m²)

HCS 150 (No Topping)			HCS = fc' 40 MPa									
HCS	ØMn	ØVcw	Span [m]									
	kN.m	kN	4	4.5	5	5.5	6	6,5	7	7.5	8	
150. 8. 4 - 09	43.9	63.5	9.6	7.1	5.3	4.0	3.0					
150. 8. 5 - 09	54.0	64.3	9.8	7.9	6.3	4.8	3.7					
150. 8. 6 - 09	63.8	65.2	11.9	9.5	7.3	5.6	4.4	3.4				
150. 8. 7 - 09	73.3	66.0	13.9	10.6	8.2	6.4	5.0	4.0	3.1			
150. 8. 8 - 09	82.6	66.8	15.0	11.6	9.0	7.1	5.6	4.5	3.6			
150. 8. 5 - 12	91.5	65.7	14.8	12.1	9.8	7.8	6.2	5.0	4.0	3.2		

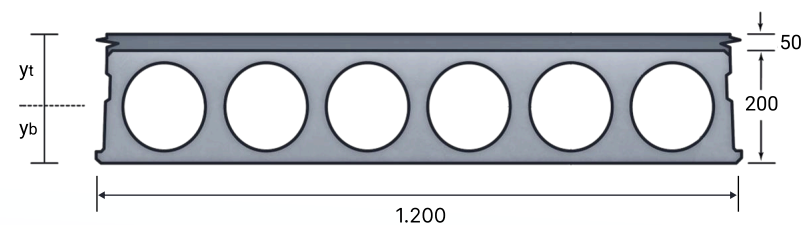
HCS = f_c' 40 MPa
Topping = f_c' 30 MPa

HCS	ØMn	ØVcw	Span [m]									
	kN.m	kN	4	4.5	5	5.5	6	6,5	7	7.5	8	
150. 8. 4 - 09	57.2	85.7	12.5	9.3	6.6	4.6	3.0					
150. 8. 5 - 09	70.4	86.2	13.8	11.4	8.2	5.9	4.1					
150. 8. 6 - 09	83.2	86.7	16.7	13.2	9.7	7.1	5.1	3.6				
150. 8. 7 - 09	95.8	87.1	20.1	15.0	11.1	8.3	6.2	4.5	3.1			
150. 8. 8 - 09	108.1	87.6	20.2	16.7	12.5	9.4	7.1	5.3	3.9			
150. 8. 5 - 12	120.2	86.9	20.0	17.2	13.8	10.6	8.1	6.1	4.6	3.3		

Note : • Superimposed load is life load and dead load (not include HCS self weight, topping concrete and joint filler).
• Superimposed load on left side heavy line is determine by concrete shear strength and on the right side heavy line is limited by concrete allowable tension stress value

PRODUCT SHAPE & SPECIFICATION

► HCS 200



No	Properties	Notation	Unit	No Topping	Topping
1	Area	A	cm ²	1.195,8	--
2	Cgc to Bottom fiber	y _b	cm	9,9	13,7
3	Cgc to Top fiber	y _t	cm	10,1	11,3
4	Moment of Inertia	I _x	cm ⁴	60.891	119.578
5	Concrete Shear Width	b _w	cm	21,5	21,5
6	Unit weight of HCS	w	kg/m'	287,0	431,0
7	Joint fill weight	q	kg/m'	17,3	17,3

HCS 200 (No Topping)

HCS = f_c' 40 MPa

HCS	ØMn	ØVcw	Span [m]																	
	kN.m	kN	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10,5	11	11,5	12	12,5
200. 6. 4 - 09	59.1	51.8	11.6	10.1	8.1	6.4	5.1	4.1	3.2											
200. 6. 5 - 09	72.9	52.5	11.8	10.3	9.1	7.9	6.2	5.0	4.0	3.1										
200. 6. 6 - 09	86.3	53.1	12.0	10.4	9.2	8.2	7.2	5.7	4.6	3.7	3.0									
200. 6. 7 - 09	99.5	53.8	12.1	10.6	9.3	8.1	7.5	6.5	5.3	4.3	3.5									
200. 6. 4 - 12	102.2	52.7	11.8	10.3	9.1	8.1	7.3	6.6	5.4	4.4	3.6	3.0								
200. 6. 5 - 12	125.2	53.5	12.1	10.5	9.3	8.3	7.4	6.7	6.1	5.4	4.5	3.7	3.1							
200. 6. 6 - 12	146.9	54.3	12.3	10.7	9.4	8.4	7.6	6.9	6.2	5.7	5.2	4.4	3.7	3.1						
200. 6. 7 - 12	166.1	55.1	12.5	10.9	9.6	8.6	7.7	7.0	6.3	5.8	5.3	4.9	4.3	3.7	3.1					

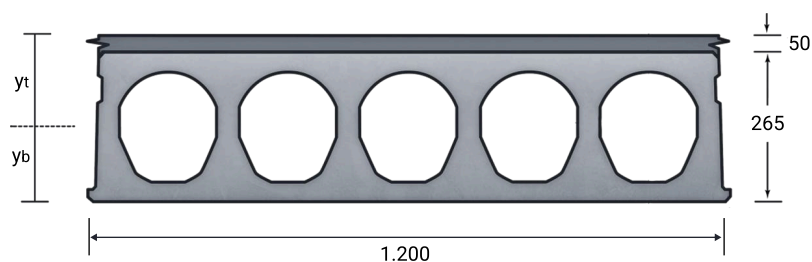
HCS 200 + 50 (Topping 50mm)

HCS = fc' 40 MPa
Topping = fc' 30 MPa

HCS	ØMn	ØVcw	Span [m]																	
	kN.m	kN	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10,5	11	11,5	12	12,5
200. 6. 4 - 09	67.5	65.7	14.4	11.4	8.7	6.7	5.2	4.0	3.1											
200. 6. 5 - 09	83.7	66.2	14.5	12.6	11.0	9.5	7.2	5.4	4.0											
200. 6. 6 - 09	99.1	66.6	14.6	12.7	11.1	9.9	8.5	6.5	4.9	3.6										
200. 6. 7 - 09	114.2	67.1	14.7	12.8	11.2	9.9	8.9	7.6	5.9	4.5	3.3									
200. 6. 4 - 12	117.3	66.3	14.5	12.6	11.1	9.8	8.8	7.8	6.0	4.6	3.5									
200. 6. 5 - 12	143.7	66.9	14.7	12.7	11.2	9.9	8.9	8.0	7.2	6.0	4.7	3.6								
200. 6. 6 - 12	169.2	67.4	14.8	12.9	11.3	10.0	9.0	8.1	7.3	6.6	5.9	4.7	3.6							
200. 6. 7 - 12	193.6	68.0	14.9	13.0	11.4	10.1	9.1	8.2	7.4	6.7	6.1	5.6	4.5	3.6						

PRODUCT SHAPE & SPECIFICATION

HCS 265



No	Properties	Notation	Unit	No Topping	Topping
1	Area	A	cm ²	1.117,5	--
2	Cgc to Bottom fiber	y _b	cm	7,4	10,6
3	Cgc to Top fiber	y _t	cm	7,6	9,4
4	Moment of Inertia	I _x	cm ⁴	28.987	66.028
5	Concrete Shear Width	b _w	cm	34,7	34,7
6	Unit weight of HCS	w	kg/m'	268,2	412,2
7	Joint fill weight	q	kg/m'	13,0	13,0

HCS 265 (No Topping)

HCS = f_c' 40 MPa

HCS	ØMn kN.m	ØVcw kN	Span [m]																	
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5
265.5. 6 - 09	122.8	79.0	18.1	15.8	13.9	12.4	11.2	9.5	7.8	6.4	5.2	4.3	3.5							
265.5. 8 - 09	160.4	80.5	18.4	16.1	14.2	12.7	11.5	10.4	9.5	8.0	6.7	5.6	4.6	3.8	3.2					
265.5.10 - 09	189.6	79.1	18.1	15.8	13.9	12.5	11.2	10.2	9.2	8.5	7.7	6.5	5.5	4.6	3.8	3.2				
265.5.12 - 09	225.3	80.9	18.5	16.2	14.3	12.8	11.5	10.5	9.5	8.7	8.0	7.4	6.5	5.6	4.7	4.0	3.4			
265.5.14 - 09	252.4	80.5	18.4	16.1	14.2	12.7	11.5	10.4	9.5	8.7	8.0	7.4	6.8	6.2	5.4	4.6	3.9	3.3		
265.5.10 - 12	301.5	78.2	17.8	15.6	13.8	12.3	11.1	10.0	9.1	8.4	7.7	7.1	6.6	6.1	5.6	5.3	4.9	4.3	3.7	3.2

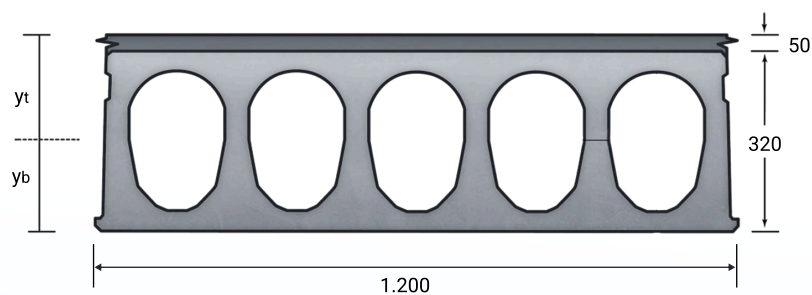
HCS 265 + 50 (Topping 50mm)

HCS = f_c' 40 MPa
Topping = f_c' 30 MPa

HCS	ØMn kN.m	ØVcw kN	Span [m]																	
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5
265.5. 6 - 09	135.0	93.8	21.0	18.3	16.1	14.4	12.9	10.1	8.2	6.7	5.3	4.1	3.0							
265.5. 8 - 09	176.8	94.9	21.3	18.5	16.3	14.6	13.1	11.8	10.7	9.0	7.2	5.8	4.5	3.5						
265.5.10 - 09	209.6	93.5	20.9	18.2	16.1	14.3	12.8	11.6	10.5	9.6	8.6	7.0	5.7	4.5	3.5					
265.5.12 - 09	248.8	94.9	21.3	18.6	16.3	14.6	13.1	11.8	10.7	9.8	9.0	8.2	7.1	5.8	4.7	3.7				
265.5.14 - 09	279.6	94.5	21.2	18.5	16.3	14.5	13.0	11.7	10.6	9.7	8.9	8.2	7.5	6.7	5.5	4.5	3.6			
265.5.10 - 12	339.6	92.6	20.7	18.0	15.9	14.1	12.7	11.4	10.4	9.5	8.7	8.0	7.3	6.8	6.3	5.8	5.4	4.1	3.3	

PRODUCT SHAPE & SPECIFICATION

HCS 320



No	Properties	Notation	Unit	No Topping	Topping
1	Area	A	cm ²	1.881,2	--
2	Cgc to Bottom fiber	y _b	cm	15,7	19,8
3	Cgc to Top fiber	y _t	cm	16,3	17,2
4	Moment of Inertia	I _x	cm ⁴	243.068	388.344
5	Concrete Shear Width	b _w	cm	24,9	24,9
6	Unit weight of HCS	w	kg/m'	451,5	595,5
7	Joint fill weight	q	kg/m'	27,5	27,5

HCS 320 (No Topping)

HCS = f_c' 40 MPa

HCS	ØMn kN.m	ØVcw kN	Span [m]																	
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5
320.5. 6 - 09	155.1	103.2	23.9	21.0	18.6	16.6	15.0	12.6	10.5	8.7	7.3	6.1	5.1	4.2	3.4					
320.5. 8 - 09	204.6	104.9	24.4	21.3	18.9	16.9	15.3	13.9	12.7	11.0	9.3	7.8	6.6	5.5	4.6	3.9	3.2			
320.5.10 - 09	244.1	103.6	24.0	21.0	18.6	16.7	15.0	13.7	12.5	11.5	10.6	9.1	7.7	6.5	5.5	4.7	4.0	3.3		
320.5.12 - 09	282.8	103.1	23.9	20.9	18.6	16.6	15.0	13.6	12.4	11.4	10.5	9.7	8.8	7.5	6.5	5.5	4.7	4.0	3.4	
320.5.10 - 12	345.5	98.2	22.6	19.8	17.5	15.7	14.1	12.8	11.7	10.7	9.9	9.1	8.5	7.9	7.3	6.6	5.7	4.9	4.2	3.6
320.5.12 - 12	407.0	100.0	23.1	20.2	17.9	16.0	14.4	13.1	12.0	11.0	10.1	9.3	8.7	8.1	7.5	7.0	6.6	6.1	5.5	4.8

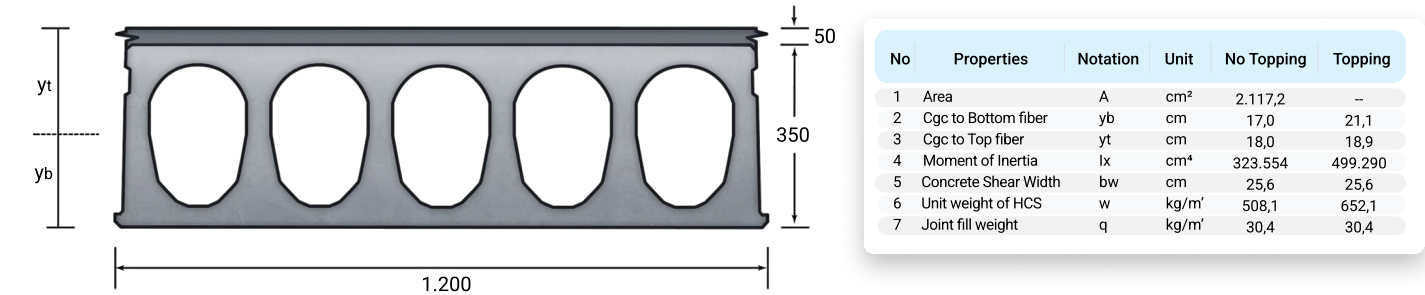
HCS 320 + 50 (Topping 50mm)

HCS = f_c' 40 MPa
Topping = f_c' 30 MPa

HCS	ØMn kN.m	ØVcw kN	Span [m]																	
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5
320.5. 6 - 09	164.8	118.9	27.1	23.7	21.0	18.7	15.5	12.7	10.4	8.6	7.1	5.8	4.8	3.8						
320.5. 8 - 09	217.7	120.1	27.4	24.0	21.2	18.9	17.0	15.4	14.1	12.5	10.3	8.4	6.6	5.5	4.4	3.4	3.2			
320.5.10 - 09	260.0	118.7	27.1	23.6	20.9	18.7	16.8	15.2	13.9	12.7	11.6	10.0	8.3	6.8	5.6	4.5	4.0	3.6		
320.5.12 - 09	301.4	118.1	26.9	23.5	20.8	18.6	16.7	15.1	13.8	12.6	11.6	10.7	9.7	8.1	6.7	5.5	4.7	4.5		
320.5.10 - 12	374.1	110.9	25.0	21.8	19.3	17.2	15.4	14.0	12.7	11.6	10.6	9.8	9.0	8.4	7.8	7.0	5.7	5.8	3.9	3.1
320.5.12 - 12	451.3	112.1	25.4	22.1	19.5	17.4	15.6	14.2	12.9	11.8	10.8	9.9	9.2	8.5	7.9	7.0	7.3	6.8	5.5	4.6

PRODUCT SHAPE & SPECIFICATION

► HCS 350



HCS 350 (No Topping)

HCS = f_c' 40 MPa

HCS	ØMn	ØVcw	Span [m]																						
	kN.m	kN	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	
350.4.10 - 09	229.9	142.2	24.4	21.3	18.8	16.8	15.2	13.7	12.5	11.5	10.2	8.6	7.2	6.0	5.0	4.2	3.4								
350.4. 5 - 12	256.0	155.9	27.1	23.7	21.0	18.8	17.0	15.4	14.1	12.9	11.8	10.0	8.5	7.2	6.1	5.2	4.3	3.6	3.0						
350.4.12 - 09	282.2	144.2	24.8	21.7	19.2	17.1	15.4	14.0	12.7	11.7	10.7	9.9	8.8	7.5	6.3	5.4	4.5	3.8	3.1						
350.4.10 - 12	391.5	145.4	25.1	21.9	19.4	17.5	15.6	14.1	12.9	11.8	10.9	10.7	9.3	8.7	8.1	7.5	6.6	5.7	4.9	4.2	3.5	3.0			
350.4.12 - 12	474.4	147.8	25.5	22.3	19.7	17.6	15.9	14.4	13.2	12.1	11.1	10.2	9.5	8.8	8.2	7.7	7.2	6.7	6.3	5.5	4.8	4.2	3.6	3.1	

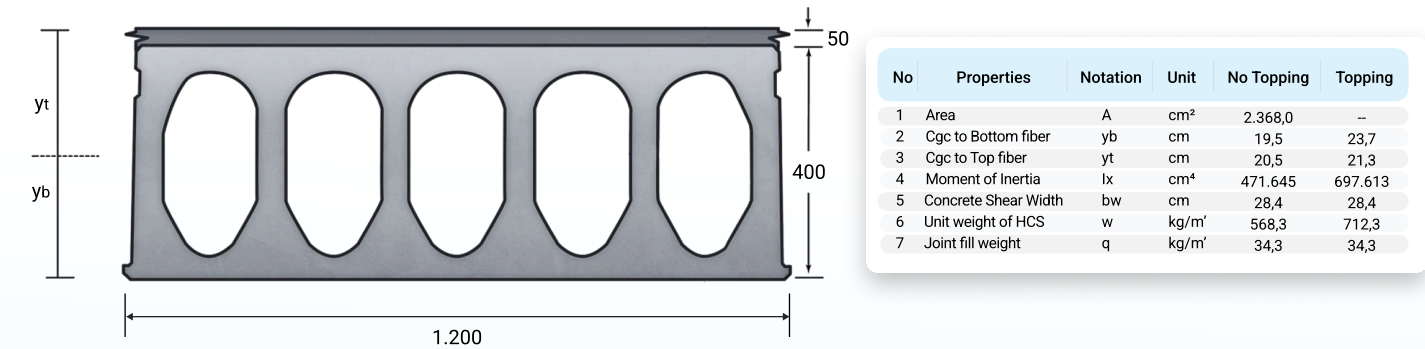
HCS 350 + 50 (Topping 50 mm)

HCS = fc' 40 MPa
Topping = fc' 30 MPa

HCS	ØMn	ØVcw	Span [m]																						
	kN.m	kN	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	
350.4.10 - 09	246.6	160.0	27.0	23.5	20.7	18.5	16.6	15.0	13.6	12.4	11.3	9.3	7.5	6.1	4.8	3.7									
350.4. 5 - 12	271.2	177.4	30.1	26.3	23.2	21.0	18.9	16.9	15.4	14.1	12.9	11.0	9.1	7.5	6.1	4.9	3.9	3.0							
350.4.12 - 09	301.7	161.4	27.3	23.8	20.9	18.7	16.8	15.2	13.8	12.6	11.5	10.6	9.6	7.9	6.5	5.3	4.2	3.3							
350.4.10 - 12	430.9	162.5	27.5	24.0	21.1	18.8	16.9	15.3	13.9	12.7	11.6	10.7	9.9	9.1	8.5	7.9	7.1	6.0	4.9	4.0	3.3				
350.4.12 - 12	520.0	166.3	28.2	24.6	21.7	19.4	17.4	15.8	14.3	13.1	12.0	11.1	10.2	9.5	8.8	8.2	7.6	7.1	6.6	5.7	4.8	4.0	3.3		

PRODUCT SHAPE & SPECIFICATION

► HCS 400



HCS 400 (No Topping)

HCS = f_c' 40 MPa

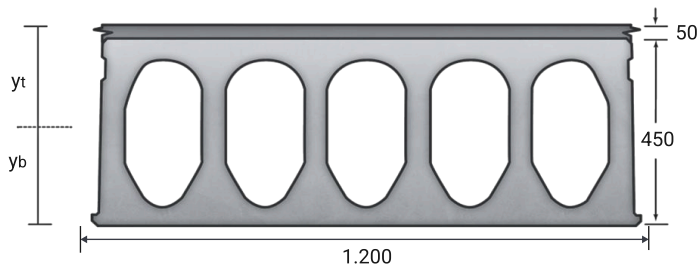
HCS	ØMn kN.m	ØVcw kN	Span [m]																								
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16
400.5.10 - 09	267.8	134.5	34.3	27.4	24.3	21.8	19.7	17.9	16.3	15.0	13.8	12.0	10.3	8.9	7.6	6.6	5.7	4.9	4.2	3.6							
400.5.12 - 09	329.2	136.2	34.6	27.8	24.7	22.1	20.0	18.1	16.6	15.2	14.1	13.0	12.1	11.2	10.2	8.9	7.8	6.8	6.0	5.1	4.4	3.7	3.1				
400.5.14 - 09	389.4	137.9	35.8	28.2	25.0	22.4	20.3	18.4	16.8	15.5	14.3	13.2	12.3	11.4	10.7	10.0	9.4	8.4	7.3	6.4	5.6	4.8	4.2	3.6	3.1		
400.5.10 - 12	459.0	137.4	35.0	28.1	24.9	22.3	20.2	18.3	16.7	15.4	14.2	13.2	12.2	11.4	10.6	9.9	9.3	8.8	8.2	7.6	6.7	5.9	5.1	4.5	3.9	3.3	
400.5.12 - 12	546.5	139.6	35.4	28.6	25.4	22.7	20.5	18.7	17.1	15.7	14.5	13.4	12.5	11.6	10.9	10.2	9.5	9.0	8.4	8.0	7.5	7.1	6.6	5.8	5.2	4.6	4.0

HCS 400 + 50 (Topping 50mm)

HCS = fc' 40 MPa
Topping = fc' 30 MPa

HCS	ØMn kN.m	ØVcw kN	Span [m]																								
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16
400.5.10 - 09	282.7	149.2	31.3	29.9	26.5	23.7	21.3	19.3	17.6	16.2	14.1	12.0	10.2	8.7	7.4	6.3	5.3	4.5	3.7	3.1							
400.5.12 - 09	346.5	150.5	31.8	30.3	26.8	23.9	21.6	19.6	17.8	16.3	15.0	13.9	12.9	11.9	10.1	8.7	7.5	6.5	5.6	4.8	3.9	3.1					
400.5.14 - 09	409.1	155.1	32.2	31.3	27.7	24.8	22.4	20.3	18.5	17.0	15.6	14.4	13.4	12.4	11.6	10.8	10.1	8.5	7.4	6.4	5.4	4.5	3.7	3.0			
400.5.10 - 12	483.3	151.8	32.1	30.6	27.0	24.2	21.8	19.8	18.0	16.5	15.2	14.0	13.0	12.1	11.2	10.5	9.8	9.2	8.6	7.9	6.8	5.8	4.9	4.1	3.3		
400.5.12 - 12	576.5	153.7	32.6	31.0	27.4	24.5	22.1	20.1	18.3	16.8	15.4	14.3	13.2	12.3	11.4	10.7	10.0	9.4	8.8	8.3	7.8	7.3	6.6	5.7	4.9	4.1	3.5

► **HCS 450**



No	Properties	Notation	Unit	No Topping	Topping
1	Area	A	cm ²	2.765,0	–
2	Cgc to Bottom fiber	y _b	cm	22,5	30,0
3	Cgc to Top fiber	y _t	cm	22,5	25,0
4	Moment of Inertia	I _x	cm ⁴	676.563	1.254.509
5	Concrete Shear Width	b _w	cm	33,0	33,0
6	Unit weight of HCS	w	kg/m ³	663,6	951,6
7	Joint fill weight	q	kg/m ²	39,9	39,9

HCS 450 (No Topping)

$$HCS = f_c' \ 40 \text{ MPa}$$

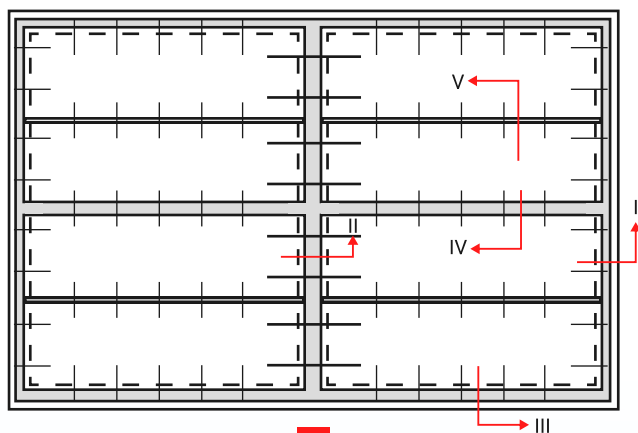
HCS	ØMn kN.m	ØVcw kN	Span [m]																															
			4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5				
450.4.12-09	364.3	235.1	41.5	36.4	32.3	29.0	26.2	23.9	21.9	20.1	17.1	16.2	14.2	12.4	10.9	9.6	8.1	7.2	6.3	5.4	4.7	3.9	3.4											
450.4.15-09	464.9	241.7	42.9	37.6	33.4	30.0	27.1	24.7	22.4	19.2	17.1	15.0	13.5	12.1	10.9	9.8	9.0	8.2	7.6	6.9	6.4	5.9	5.5	4.7	4.1	3.5								
450.4.10-12	508.3	236.8	41.8	36.7	32.6	29.3	26.5	24.1	22.1	20.3	18.8	17.4	16.2	15.1	14.1	13.3	12.5	11.5	10.1	8.9	7.8	6.9	6.0	5.2	4.5	3.9	3.3							
450.4.12-12	623.1	240.1	42.5	37.3	33.1	29.7	26.9	24.5	22.4	20.6	19.1	17.7	16.5	15.4	14.4	13.5	12.7	12.0	11.3	10.7	10.1	9.0	8.0	7.1	6.3	5.6	4.9	4.3	3.7	3.2				

HCS 450 + 100 (Topping 100 mm)

HCS = f_c' 40 MPa
Topping = f_c' 30 MPa

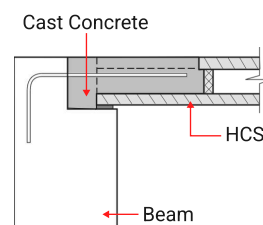
HCS	ØMn	ØVcw	Span [m]																												
	kN.m	kN	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5	17	17.5	
400.5.10-09	418.7	286.8	49.8	43.6	38.6	34.6	31.2	28.3	25.9	23.7	20.6	17.9	15.5	12.8	11.1	9.5	8.3	7.0	5.7	4.6	3.9										
400.5.12-09	531.5	296.8	51.7	45.4	40.2	36.0	32.5	29.5	27.0	24.8	22.9	21.1	19.6	18.3	16.0	14.0	12.2	10.7	8.9	8.2	6.8	5.5	4.4	3.4	4.1						
400.5.14-09	586.5	281.5	48.8	42.7	37.8	33.8	30.5	27.7	25.3	23.2	21.4	19.7	18.3	17.0	15.9	14.8	13.9	12.4	10.5	8.8	7.4	6.3	5.1	4.1	4.5						
400.5.10-12	715.9	290.6	50.5	44.3	39.2	35.1	31.7	28.8	26.3	24.1	22.2	20.6	19.1	17.8	16.6	15.5	14.5	13.6	12.4	11.5	10.8	9.3	7.9	6.7	6.3	4.5	3.6				

CONNECTION DETAIL

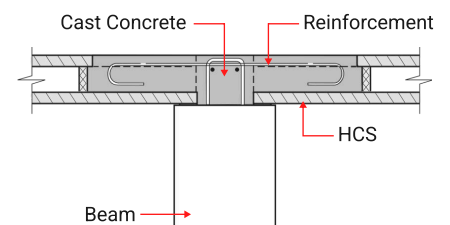


HCS Plan

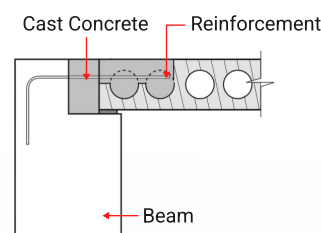
For structur building integrity HCS Joint should follow engineering design detail



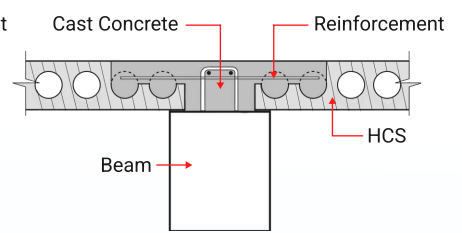
Section-I



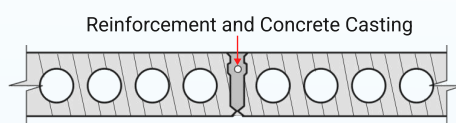
Section-II



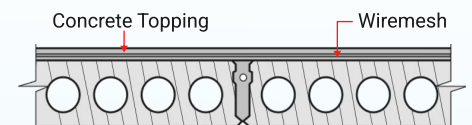
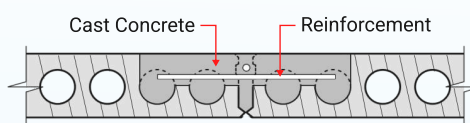
Section-III



Section-IV

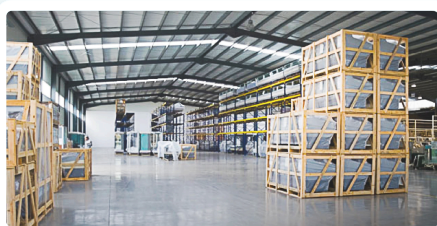


Section-V

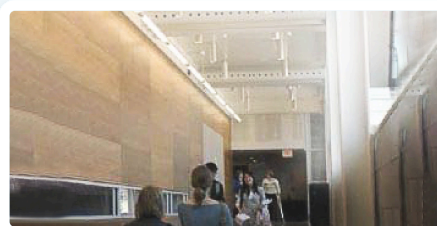


Alternative to using Concrete Topping

PRODUCT APPLICATION



Warehouse Floors



Offices and Apartment Floors



Car Park Floors

PRECAST HOUSING

DESCRIPTION

To address the housing backlog, precast house construction has been developed. The precast housing system consists of beam, column, and wall components produced in a factory, then distributed and assembled into house structures. During the design phase of residential structures, it is essential to consider the risk of failure due to earthquakes. This is because Indonesia is an archipelagic country located in a highly active tectonic zone, resulting in a high seismic risk.

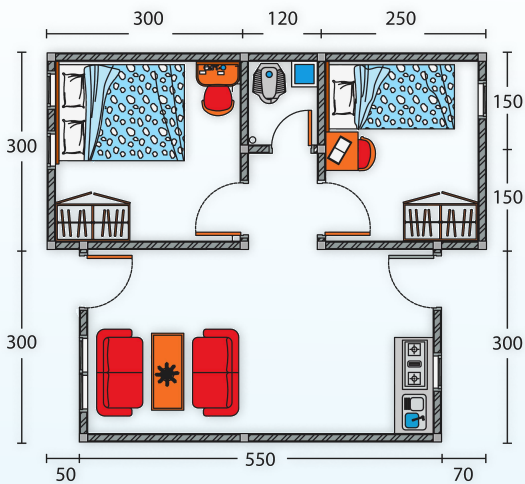
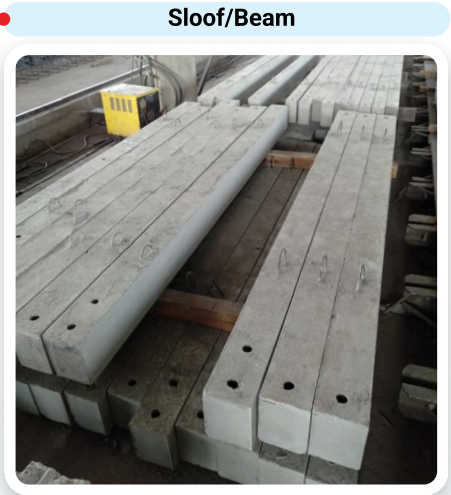
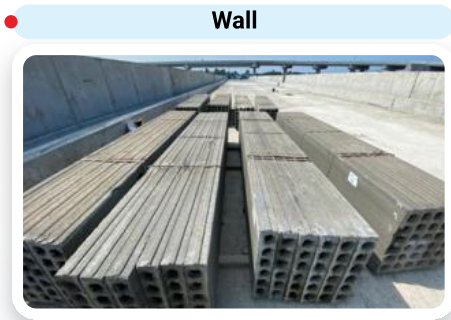
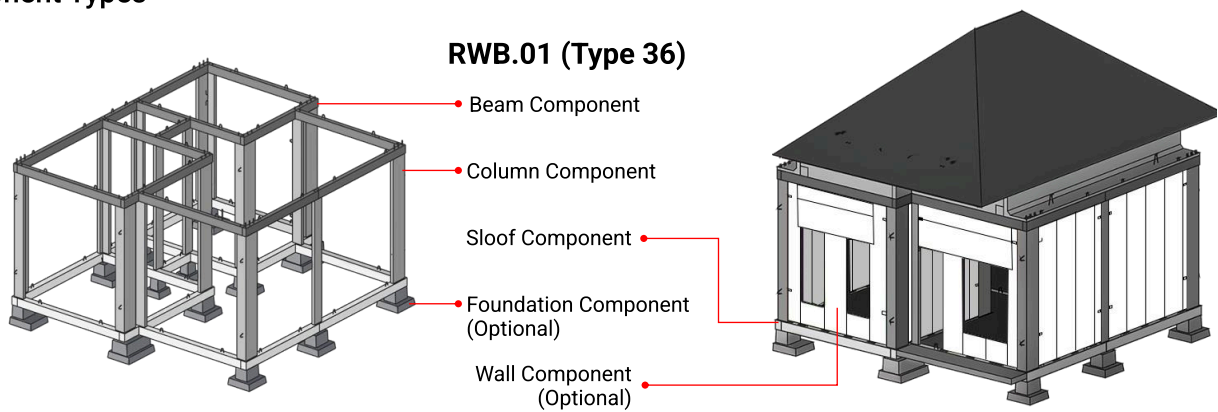
The structural components of a house include the foundation, sloof (tie beams), columns (T-shaped & L-shaped), and ring beams made from reinforced concrete. These components are designed to be light enough for workers to lift. Starter bars are installed in the foundation, then the sloof and foundation components are placed and connected by filling grouting material into the holes of the sloof and column components. The connection between columns and ring beams uses plates that link the column and beam components, secured with bolts and nuts.

The advantages of the precast housing structure are guaranteed product component quality, faster construction time compared to conventional housing systems, and reliable structural quality.

Design

SNI 2847 : 2019	Indonesian Standard Code for Concrete Building Structural
SNI 6880 : 2016	Structural Concrete Spesification

Component Types



Floor Plan RWB.01 (Type 36)

- Living room
- Kitchen
- 2 Bedrooms
- 1 Bathroom

Patent Registered

- ID. S00201909393
- ID. S00201909358
- ID. S00201909352

ADVANTAGES OF WIKA BETON HOUSE

1. Product quality is guaranteed and consistent
2. The installation of components uses a knock-down system so that the installation process is fast.
3. The house is proven to be earthquake resistant.



MARINE STRUCTURE CP



DESCRIPTION

Concrete products for marine structures are essential in the construction of jetties, port bridges, and breakwaters. WIKA Beton offers a variety of breakwater products such as A-Jacks and Tetrapods, as well as precast components for wharf and jetty/trestle structures, including Piles, Pile Caps, Beams, and Slabs.

For breakwater types like A-Jacks and Tetrapods, component weights range from 1.2 tons to 10 tons. Tetrapod products are made in two components to facilitate distribution, which are then assembled into a complete tetrapod unit. In the construction of wharves and jetties, the use of precast concrete products offers many advantages, such as faster construction, easier construction work, and guaranteed structural quality compared to on-site casting methods. The use of high-quality concrete incorporating cementitious materials like fly ash, silica fume, and others results in denser concrete that can withstand marine environments, providing high durability and longevity for the structures. In addition to the products mentioned above, WIKA Beton can also produce custom products according to customer needs.

Types of Marine Product

Breakwater

- A-Jack
- Tetrapod



Precast Harbour

Precast Component :
Pile Cap, Fender, Half Slab/Slab, U-Beam



Trestle/Jetty

Precast Component :
Pile, Pile Cap, Beam, Slab



DESIGN REFERENCE

Design

SNI 6880 : 2016

Structural Concrete Specification

SNI 2847 : 2019

Indonesian Standar Code for Concrete

PRODUCT SHAPE & SPECIFICATION

► Breakwater

► A-Jack (1,3t, 4t, &10t)



► Tetrapod (0,5t, 1t ,2t, 4t, 4,5t, 6t & 7t)



PROJECT REFERENCE



Ijo Logending Breakwater - Middle Java

PRECAST HARBOUR | PROJECT REFERENCE

► Port of Malahayati



PRECAST PILE CAP



PRECAST FENDER



PRECAST HALF SLAB

A new 10.000 DWT Malahayati Harbour Project is a part of government project for rehabilitate and reconstruction facilities in Nanggroe Aceh Darussalam Province after tsunami disaster in 2004. The harbour uses a precast components for pile cap, beam and half slab to ensure the quality of material and fast construction method. Precision of precast concrete is the main for success of this project.

► Port of Sabang



PRECAST PILE CAP



PRECAST U-BEAM



PRECAST SLAB

A new Sabang Bay Harbour which located in Nanggroe Aceh Darussalam province, is design to be a CT3 transit harbour that can also accommodate 10.000 DWT boat. The purpose of this harbour is to support development around Sabang area in coming year as a business and tourism hub. The harbour is designed with precast component for pile cap, U-shell beams and half slab to ensure the quality of material and fast construction method.

TRESTLE/JETTY | PROJECT REFERENCE

► Trestle at Cirebon Coal Electric Power Plant 1x660MW



The 2-kilometer trestle at the Cirebon Coal Electrical Power Plant Area is use to distribute the coal consumed to drive the 660 MW power plant. The Trestle uses a 20-meter long of precast PC-I girder with high concrete compression strength rods for its upper structure.

► Gorgon Project - Barrow Island Lng Jetty And Marine Structures



Saipem Leighton Consortium Chevron Australia Pty Ltd

OTHER PRODUCTS

DESCRIPTION

In addition to standard products, WIKABETON is also capable of producing customized products according to varying customer designs, accommodating materials with specific specifications and particular precast concrete shapes. Quality control measures taken during material arrival, production processes, and product inspections ensure that the delivered products meet all quality aspects. The use of steel molds guarantees precise production results and a good surface finish.

Tunnel Lining Segmental



Hollow Girder Segmental



Aesthetic Parapet



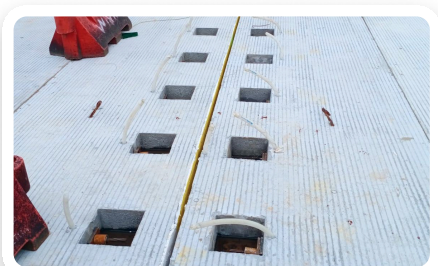
Median Concrete Barrier (MCB)



Precast Box Traffic



Rigid Pavement



Pier Precast



L Shape Retaining Wall



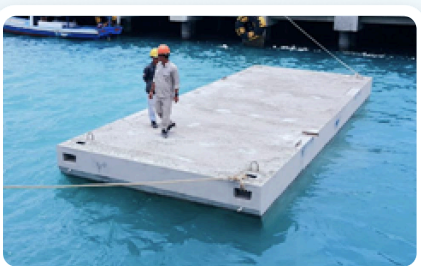
Sewerage Manhole



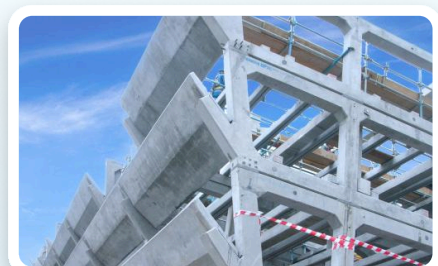
Irrigation Lining



Floating Dock



Industrial Structure



READY MIX CONCRETE



Ready mix concrete (RMC) is concrete that is produced in a batching plant according to the specific needs of a project and then delivered to the job site in a "ready-to-use" state. Ready mix concrete can support infrastructure projects such as roads and buildings, among others. WIKABETON is capable of providing all grades of concrete with an agreed job mix formula. WIKABETON can also supply special concretes such as Self Compacting Concrete (SCC), Mortar Foam Concrete, Porous Concrete, and Normal to High Strength Performance Concrete.



13 Batching Plant

Production Capacity

- 1.300.000 m³/year
- 2.900.000 ton/year



270 m³/hour
90.000 - 300.000
m³/year



90 m³/hour
50.000 - 150.000
m³/year



60 m³/hour
20.000 - 70.000
m³/year

CONCRETE PAVER SERVICE



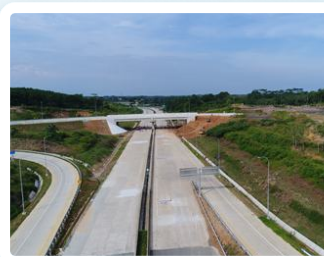
Paver Type :

- 4 Units SP-500
- 2 Units SP-64

Specification :

- Pavement Wide 6 m
- Dowel Bar Insertter

PROJECT REFERENCE



Balikpapan - Samarinda Toll
East Kalimantan



Jakarta - Bandung
High Speed Railway Project

MATERIALS



The quarry business segment is part of concrete production process managed by WIKABETON, in which the activities include the mining and production of split stones, screen, other materials.



Product Types :

- **BOULDER**
Large rock chunks with dimensions > 25 cm and weight ranging from 200 kg to 2 tons.
- **SUBBASE LAYER & BASE LAYER**
Mixture of split stones and stone dust with specific compositions used for pavement foundations.
- **TOP SOIL**
Used for earthen embankments in building structures or highways.
- **MATERIAL STONE CRUSHER**
 - ▶ These products can be used for :
 - Concrete aggregates
 - Subbase and base layer pavements
 - Hot mix/asphalt aggregates
 - Railway ballast
 - ▶ Split Stone 3-10 (Ballast/Weight)
 - ▶ Split Stone 2-3
 - ▶ Split Stone 1-2
 - ▶ Screenings
 - ▶ Stone Dust

WTON SHMS

WIKABeton Structural Health Monitoring System

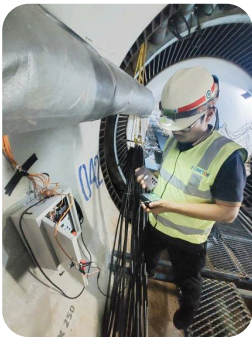


WIKABeton Structural Health Monitoring System (WTON SHMS) is a monitoring system developed by PT Wijaya Karya Beton Tbk. The system being developed is a hardware consisting of sensors, acquisition devices, data transmission, and a software system consisting of data processing systems, data management and structural evaluation.

Structural Health Monitoring System (SHMS) is a popular method to detect degradation of structural strength or damage at bridges. This method uses instrumentation tools to detect actions on structures, such as structure behavior, live load (traffic load, train load etc.) occurring, well as action from nature.

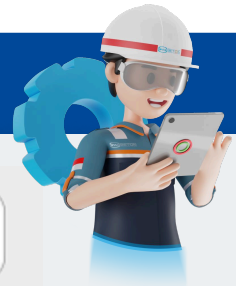
The purpose of the SHMS is very diverse, for example, for the natural data collection, giving warning to bridge users, and notifying structure problems.

ADVANTAGES WTON SHMS



- ▶ One system for all sensor
- ▶ Integrated data and realtime
- ▶ Pre-processing, small data delivery
- ▶ Data not connect to the foreign Country
- ▶ Local data can be accessed and downloaded
- ▶ Data remains save if offline, will be resend after active network
- ▶ Native Android Application

FEATURES



Accelerometer



Displacement



Strain Transducer

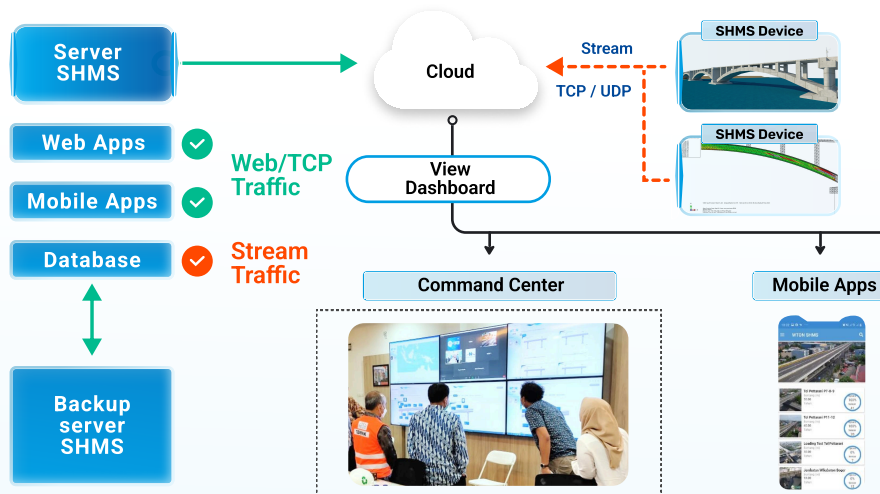


Tiltmeter



ATRH

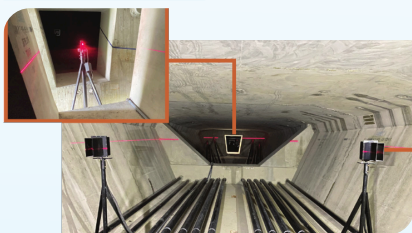
PROCESS DIAGRAM WTON SHMS



APPLICATION SOFTWARE

- ▶ Sensor System
- ▶ Data acquisition and delivery system
- ▶ Data processing system
- ▶ Data management system
- ▶ Data evaluation system

PROJECT REFERENCE



AP. Pettarani Toll



Mrawan Tunnel

Our Services

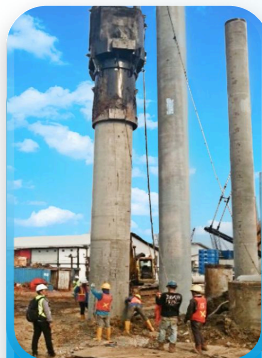
The services business segment is part of the Company's business innovations and covers erection activities with inner bore/pre-bore system, post-tension, girder installation, and construction project.

PILING SERVICE : INNERBORE SYSTEM, EASE INSTALLATION, BORE PILE & DRIVING METHOD

This service offers installation of precast pile concrete product. WIKA Beton adopts technology from Japan that is more environmental-friendly. There are Inner Bore system for installing large diameter concrete piles simultaneously, while EASE Prebore method is using for foundation with small diameter that is evolved from pre-boring method. WIKA Beton also handles piling service with driving method such as diesel hammer, hydraulic hammer and HSPD.



Inner Boring Method



Pile Driven Method



HSPD Method



Bored Pile Method



LAUNCHING GANTRY

The downstream service business unit of Precast Concrete products that serve installation service or erection component precast girder. Able to serve girder installation which spans 40 meters and whose capacity reaches 650 tons, rear feeding or ground pick up method. The service is complemented with skilled labors and professional engineer.



POSTTENSIONING

Withdrawal system component of post-strained structure for both unbonded and bonded infrastructures. Served with strong technical backup against prestress structure component for precast or cast in-site.



RAILWAY AND SYSTEMS

WIKA Beton transforms and expands to the railway and systems business covering to the Engineering, Procurement, Construction, and Commissioning. WIKA Beton has been involved in various major railway projects in Indonesia, such as the MRT Jakarta, LRT Jakarta, High Speed Railway Jakarta Bandung, and Other Railway System Projects.



INNER BORE SYSTEM

Pile Driving Service Unit

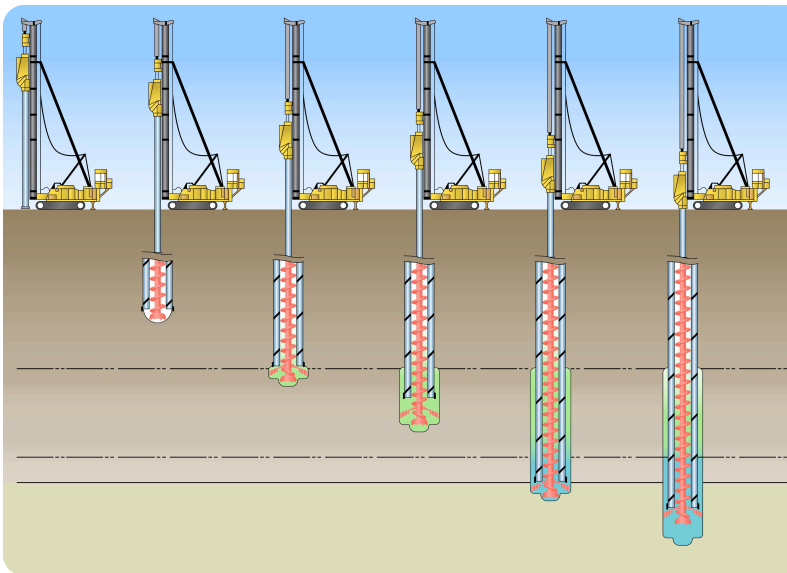
DESCRIPTION

WIKI BETON - Inner Bore System The answer of green piling challenge which deliver pile installation for building and infrastructure foundation method with low impact to environment. By using the basic concept of continuous flight auger method, Inner Bore System was developed especially for precast pile installation, as a semi auger cast bored combine with replacement of ram impact (final set in conventional precast pile installation) using root solidifying creates by cement milk injection which give more confidence for the foundation bearing capacity.

Advantages of "WB - Inner Bore System"

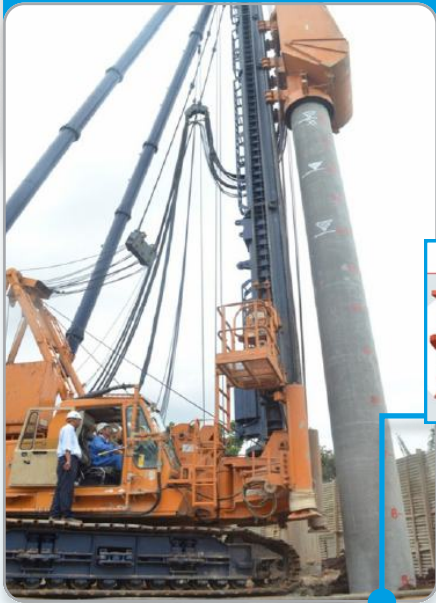
- ▶ High Bearing Capacity
- ▶ Consist of two advance piling method : Inner Bore Method & EASE Prebore Method foreign Country
- ▶ Smart Precast Pile Installation
- ▶ Relatively No Disturbed Vibration and Noise while Installation

INNER BORE METHOD

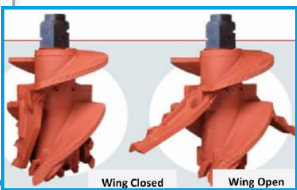


NCIC Hyper NAKS, Japan

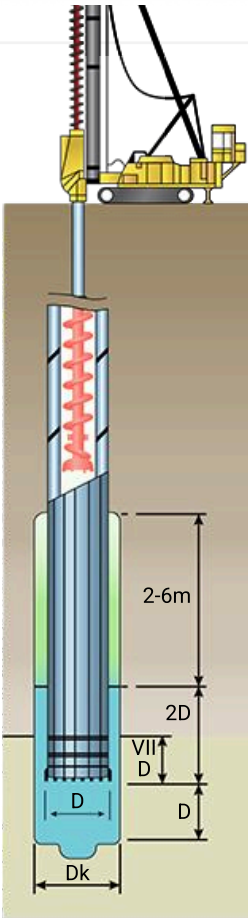
Using tripodal crawler crane, the stability of machine make the quality control of pile construction in good verticality.



Hydraulic Expanded Drill Bit

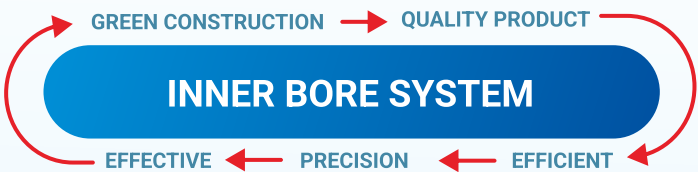


Wing Closed (left), Wing Open (right)



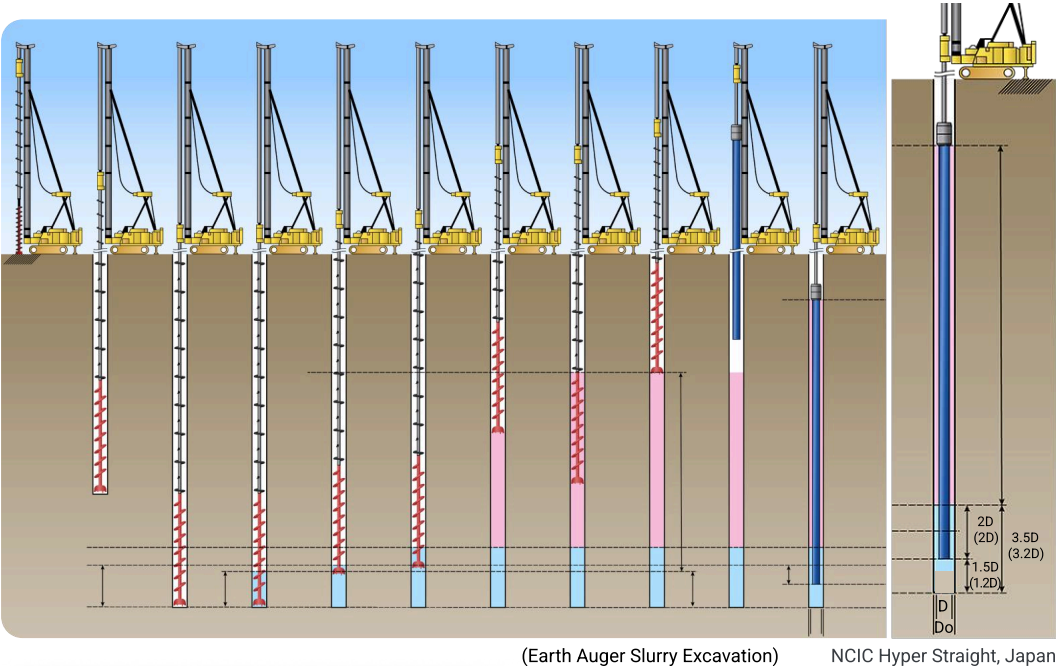
Available Diameter for Spun Pile

Pile Dia. [D] in (mm)	800	1000	1200
Socket Enlargement [Dk] in (mm)	1090	1370	1640

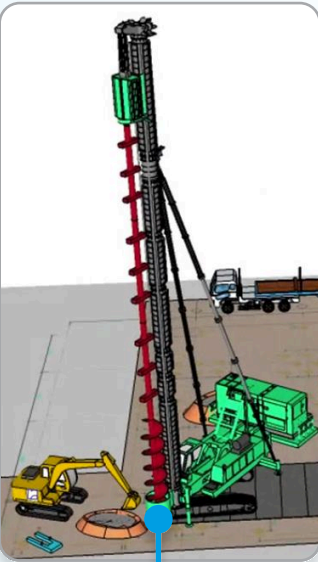


EASE PREBORE METHOD

High bearing capacity can be achieved by creating new interface using cement milk socket at the bottom tip of pile (Inner Bore Method and EASE Prebore Method) or creating soil mix along middle to upper part of pile using soil cement mix (EASE Prebore Method) to enhance friction along pile.



EASE PreBore Method Pile Socket



Drill Bit Clay Type (left), Special Magnum Bit (right)

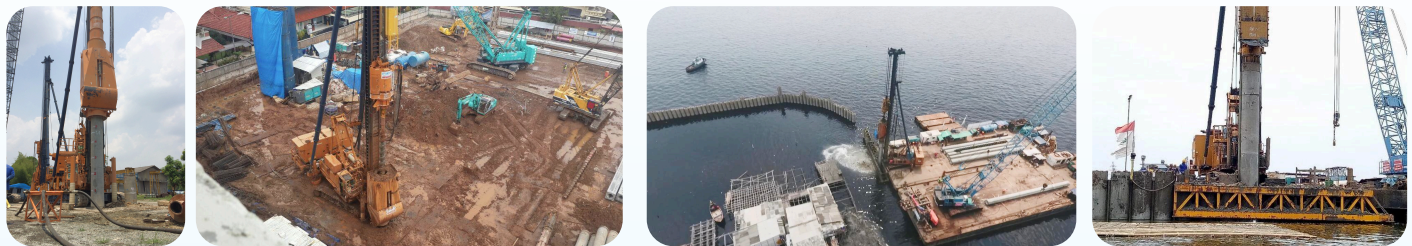
Available Diameter for Spun Pile	
Pile Dia. [D] in (mm)	600
Socket Enlargement [D] in (mm)	750

PROJECT REFERENCE : EASE PREBORE METHOD



Central Java Power Plant (CJPP), Batang Regency, Central Java Province

PROJECT REFERENCE : INNER BORE METHOD



St Carolus Hospital - Jakarta

National Capital Integrated Coastal Development - Jakarta

RESEARCH LABORATORY

 Komplek Industri WIKA Beton
Jl. Raya Narogong KM 26, Cileungsi, Kel. Kembang Kuning,
Kec. Klapanunggal, Kab. Bogor, Jawa Barat 16710

 laboratorium.riset@wika-beton.co.id
labrisetwiton@gmail.com



DESCRIPTION

The Research Laboratory of PT Wijaya Karya Beton Tbk is a laboratory capable of implementing National and International Standards in carrying out its duties and functions, in accordance with the quality policy of the Research Laboratory that has been integrated with the SNI ISO/IEC 17025:2017 quality system.

In its performance, the Research Laboratory also always provides support to the internal units of PT Wijaya Karya (Persero) Tbk to maximize their performance.

The Research Laboratory of PT Wijaya Karya Beton Tbk is equipped with adequate and calibrated equipment to achieve the accuracy of test results, as well as competent resources and experts in their fields to provide the required testing services according to their testing capabilities.

The Research Laboratory is supported by appropriate and calibrated equipment in performing its functions according to its testing capabilities.

Ultrasonic Pulse Velocity



GPR Live Locator



Hammer Test



Pundit Array



Tensile Strength Test



Compressive Strength Test



OUR SERVICES



The Research Laboratory is equipped to perform the necessary tests to determine the quality of materials, concrete, steel, and products, including:

Aggregate Test

- | | |
|---|------------------------------------|
| • Mud Content | • Abrasion |
| • Bulk Density / Volume | • Water Content in Aggregates |
| • Specific Gravity and Absorption of Aggregates | • Organic Content |
| • Sieve Analysis | • Clay Lumps and Friable Particles |

Rebar & Strand Test

- Tensile Strength
- Bending Strength

Product Test

- ### Bending and Shear Test

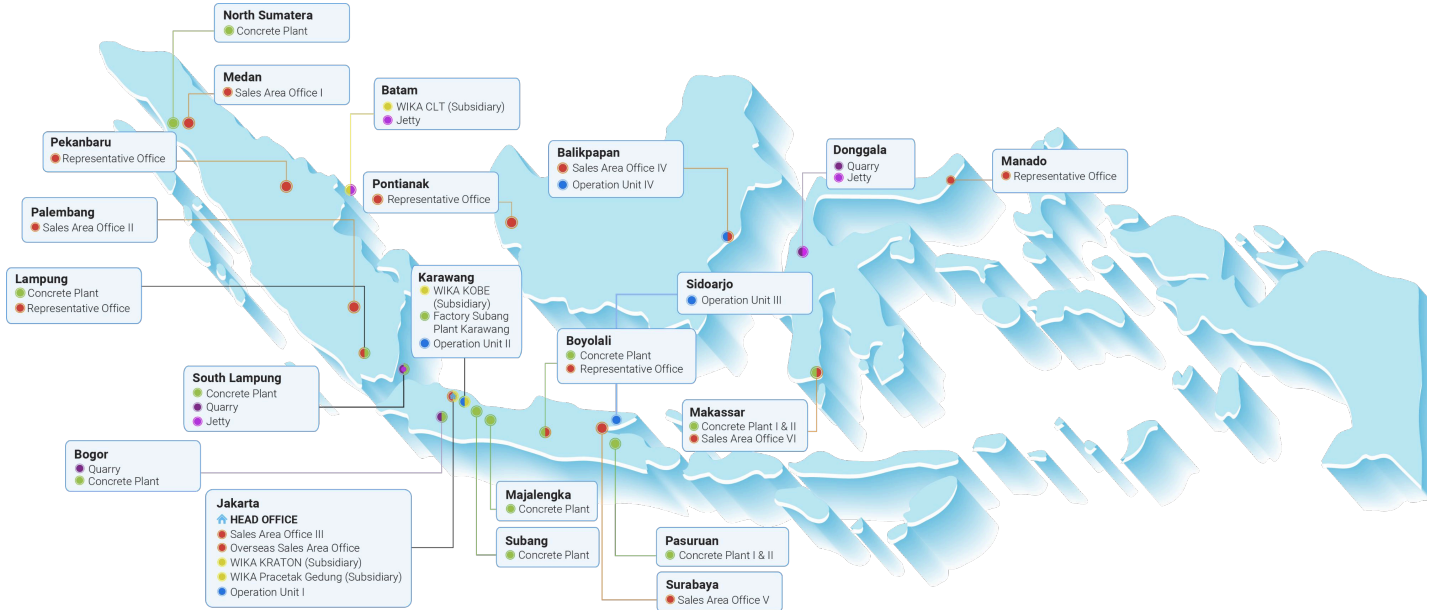
Soil Test

- ### CBR Test (California Bearing Ratio)

Concrete Test

- Fresh Concrete Air Content Test
- Mortar Setting Time Test
- Initial Cement Setting Time Test
- Fresh Concrete Slump Test
- SCC Concrete Parameters Test
- Concrete Cylinder/Cube Compressive Strength Test
- Rubber Bearing Compressive Test
- Dry Shrinkage Test on Concrete
- Beam Bending Test
- Concrete Modulus of Elasticity Test
- Hammer Test
- UPV (Ultrasonic Pulse Velocity) Test
- Rebar Scan/Locator Test
- Concrete Cover Thickness Test
- Void/Air Pocket Detection Test
- 3D Rebar Scan/Locator Test

WORK AREA AND OPERATIONAL MAP



HEAD OFFICE

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Indonesia
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marketing@wika-beton.co.id
www.wika-beton.co.id

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Kawasan Industri Surya Cipta,
Karawang, Jawa Barat 41361
Indonesia
Telp. : (0267) 8630416, 8630417
8637597
Fax. : (0267) 8630349
Email : marketing@wikakobe.com

PT Wijaya Karya Krakatau Beton (WIKAKRATON)

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Jakarta Timur DKI Jakarta 13340
Email : wikakrakatau.beton@gmail.com

PT Citra Lautan Teduh (CLT)

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Nongsa - Kota Batam 29466
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Email : marketingwikact@gmail.com
www.wikact.co.id

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Menara MTH Lantai 15
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Kel. Tebet Barat, Kec. Tebet
Jakarta Selatan
DKI Jakarta 12780
Telp. : (021) 22839380
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Wilayah Penjualan 2

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Telp. : (0711) 712534, 7300399
Email : wilayah2@wika-beton.co.id

Wilayah Penjualan 3

Jl. MT. Haryono No. 12
Kel. Cipinang Cempedak, Kec. Jatinegara,
Jakarta Timur DKI Jakarta 13340
Telp. : (021) 8573466, 8193024
Email : wilayah3@wika-beton.co.id

Wilayah Penjualan 4

Balikpapan Super Blok (BSB)/
E-Walk, Blok A No. 1
Jl. Jenderal Sudirman
Balikpapan Selatan 76114
Telp. : (0542) 877027
Email : wp4@wika-beton.co.id

Wilayah Penjualan 5

Gedung Tamansari Papilio Lt. 5
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Telp. : (031) 99003395, 99003396
Fax. : (031) 99003384
Email : wilayah5@wika-beton.co.id

Wilayah Penjualan 6

Jl. Kima Raya II Kav. S/4-5-6
Kawasan Industri Makassar
Makassar 90241
Telp. : (0411) 511761, 4723100,
4723200
Fax. : (0411) 511955, 4723166
Email : wilayah6@wika-beton.co.id

Wilayah Penjualan Luar Negeri

Jl. M.T. Haryono 12, Cipinang
Cempedak, Jatinegara
Jakarta Timur 13340
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@wika-beton.co.id

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Telp. : (0721) 482336
Fax. : (0721) 482336
Email : lampung@wika-beton.co.id

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Kalimantan Barat 78113
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Fax. : (031) 99003384
Email : wilayah5@wika-beton.co.id

Manado

Tamansari Metropolitan Blok A2 No. 3
Jl. A.A Maramis, Kel. Paniki Bawah
Kec. Mapanget, Manado,
Sulawesi Utara
Telp. : (0431) 7243812
Email : wilayah6@wika-beton.co.id

PLANTS

PPB Sumatera Utara

Jl. Raya Binjai Km. 15,5 No. 1
Kel. Diski, Kec. Deli Serdang
Medan 20351

PPB Lampung

Jl. Raya Tegineneng Km. 43,5
Desa Bumi Aung, Kec. Tegineneng
Lampung 35363

PPB Lampung Selatan

Jl. Wijaya Karya Beton
(Jl. Lintas Timur Sumatera Km. 4)
Desa Sumur, Kec. Ketapang
Lampung Selatan 35596

PLANTS

PPB Bogor

Jl. Raya Narogong Km. 26
Kec. Cileungsi, Bogor 16820
Telp. : (021) 8674010
Fax. : (021) 8674018

PPB Majalengka

Jl. Raya Burujul Kulon Tromol Pos 02
Kec. Jatiwangi, Kab. Majalengka
Jawa Barat 45454
Telp. : (0233) 881425

PPB Subang

Jl. Raya Cipeundeuy-Pabuaran Km. 3,6
Desa Karang Mukti, Kec. Cipeundeuy
Subang 41272
Fax. : (0260) 7615584

PPB Subang Plant Karawang

Jl. Surya Madya III Kav. I-34
Kawasan Industri Surya Cipta,
Karawang 41363
Telp. : (021) 89115167,
(0267) 8630315
Fax. : (0267) 8610259

PPB Boyolali

Jl. Raya Boyolali-Solo Km. 4,5
Kec. Mojosongo, Boyolali 57322
Telp. : (0276) 321138

PPB Pasuruan

Jl. Raya Kajapanan No.323
Kec. Gempol, Pasuruan 67155
Telp. : (0343) 851488, 853161
852130
Fax. : (0343) 851480

PPB Pasuruan II

Jl. Raya By Pas, Desa/Kel. Winong
Kec. Gempol, Kab. Pasuruan
Provinsi Jawa Timur

PPB Sulawesi Selatan I

Jl. Kima Raya II Kav. S/4-5-6
Kawasan Industri Makassar
Makassar 90241
Telp. : (0411) 511764

PPB Sulawesi Selatan II

Jl. Kima 20 Kav. EE/23
Kawasan Industri Makassar
Makassar 90241

CRUSHING PLANT

Crushing Plant Bogor

Desa Mekar Jaya, Kec. Cigudeg
Bogor 16660
Fax. : (0251) 8680232

Crushing Plant Lampung Selatan

Jl. Wijaya Karya Beton
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