JAYA BETON

Certificate No. : JKT 0500269

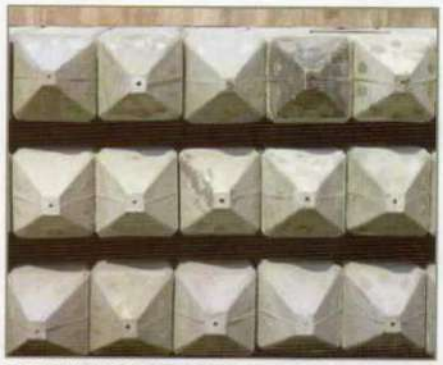
PEMBANGUNAN JAYA GROUP

PC. SPUN PILES

PC. SPUN POLES

PC. SHEET PILES (CORRUGATED TYPE)

PC. SHEET PILES (FLAT TYPE)



PRESTRESSED CONCRETE SQUARE PILE

# FOREWORD

Ever since, **PT. Jaya Beton Indonesia** (JBI) has been participating in development activities, in supporting the implementation of major products throughout Indonesia. Making a head start with Asahan Project, **PT. Jaya Beton Indonesia** rapidly gained credibility handling numerous giant project, Asean Fertilizer Plant in Aceh, Palm Oil Plant in Belawan, Andalas Cement Packaging Plant, Bulog Warehouse in Dumai and other various major project.

Our being the first national enterprise producing pre-stressed concrete spun piles and prestressed Concrete spun poles has been put on the golden records of history.

Fabricating the products above requires high technological process and utilization of the latest and most modern techniques. So, **PT. Jaya Beton Indonesia** deemed at necessary to joint forces with highly experienced Japanese companies, for technology transfer. As the result, in 1978 **PT. Jaya Beton Indonesia** established a cooperation with Sumitomo Construction Co. Ltd, and, particularly in manufacturing Pre-stressed Concrete Spun Poles, **PT. Jaya Beton Indonesia** joined hands with The Japanese Companies: Yoshimoto Co. Ltd and Daido Concrete Co. Ltd.

We have stepped far forward and had target to be a pioneer in the concrete industry. In order to achieve such target, we perpetually pursue new technological development by using modern equipment and insessantly upgrade processing methods. We offer only the best of product to our customers. That is why we become foremost in the field of concrete industries.

President Director

### Management Service Network

Producing high quality products needs some discipline in implementing technology, administration, recording. For this purpose we have a certificate for quality management, a certificate ISO 9001 : 2008

### Service

As a company which is consistent in giving high quality product, we are very active in monitoring the material have sent to get high performance at the project.

### Network

For continuous improvement of our quality we adopt the innovation in technology from neighbour country in concrete product technology. We keep cooperation with several company such as Daido Concrete, for technology in prestressed concrete pile, Yoshimoto Co Ltd, for technology in prestressed concrete pole.

### Quality

We are always committed to keep the quality, both management and product, starting from the material up to final product & delivery at the processes are throughly inspected and controlled.

### PC. Spun Pile

As the pioner producing PC. Spun Pile JBI follows standar JIS A 5335. This pile is designed to resist heavy weight construction such as building, dam, bridge and others.

### PC Spun Pole

The first time JBI produce it as the requirement of PLN and TELKOM to substitute existing pole. JBI's poles use more economical materials (at long lasting, Maintenance free). As the standard we produce base on SPLN 93 : 1991 ( standard PLN pole) and STEL L-022 and L-024 (standard TELKOM Pole).

### PC Sheet Pile (Corrugated)

The needs of this material also to substitute other material which more expensive. By combining the concrete & prestressing wire, this kind of product can resist lateral force. The standard use in this product is JIS A 5326.

### PC Sheet Pile (Flat Type)

In complementary corrugated type for the purpose of less lateral force, we also produce the flat type, the standard is also JIS A 5326.

## CORPORATE PROFILE

**PT. Jaya Beton Indonesia** was established by PT. Pembangunan Jaya in 1978 embarking from the aspiration to get abreast at the fast development progress in the industrial sector and infrastructure.

Some of giant project have been supplied by PT. Jaya Beton Indonesia instead of the materials have been imported from the overseas country at the beginning of PT. Jaya Beton Indonesia established.

The projects such as Indonesia Asahan Alumunium (INALUM), Asean Aceh Fertilizer Plant, Panjang Harbour, LNG Bontang, Jakarta Outer Ring Road, Matahari Tower (40 storey Building) have used Jaya Betond's Products.

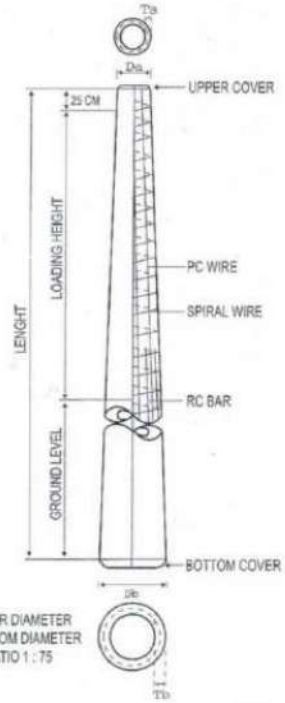
Even PT. Jaya Beton Indonesia exported the pile to Guam, Hawaii and to Brunei Darussalam for Royal Brunei Air Force Project.

With reliable products and services, Jaya Beton's market has very rapid growth. At this time, the company is in almost every infrastructur project throughout Indonesia.

# PRESTRESSED CONCRETE SPUN POLE (ELECTRICITY & TELECOMMUNICATION)

## Specification of JBI Poles
Electricity Pole (SPLN 93. 1991)

| Specification | Length | Upper Diameter Da | Lower Diameter Db | Working Load | Design Bending Moment At Ground Level | Ground Level | Steel | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | PC. Wire No. x ϕ | Reinforcing Bar No. x ϕ |
| | (m) | (cm) | (cm) | (DaN) | (kN.m) | (cm) | (mm) | (mm) |
| 7-12,4-100 | 7 | 12,4 | 22 | 100 | 5,55 | 120 | 4 x 7,0 | |
| 7-14,2-200 | 7 | 12,4 | 24 | 200 | 11,10 | 120 | 4 x 7,0 | |
| 9-15,7-100 | 9 | 16 | 28 | 100 | 7,25 | 150 | 4 x 7,0 | |
| 9-15,7-200 | 9 | 16 | 28 | 200 | 14,50 | 150 | 6 x 7,0 | 2 x 7,0 |
| 9 - 19 - 350 | 9 | 16 | 31 | 350 | 25,38 | 150 | 7 x 7,0 | 3 x 7,0 |
| 9 - 19 - 500 | 9 | 19 | 31 | 500 | 36,25 | 150 | 12 x 7,0 | 3 x 7,0 |
| 11-19-200 | 11 | 19 | 34 | 200 | 17,70 | 190 | 6 x 7,0 | 2 x 7,0 |
| 11-19-350 | 11 | 19 | 34 | 350 | 30,98 | 190 | 7 x 7,0 | 2 x 7,0 |
| 11-19-500 | 11 | 19 | 34 | 500 | 44,25 | 190 | 12 x 7,0 | 4 x 7,0 |
| 11-22-850 | 11 | 22 | 37 | 850 | 75,23 | 190 | 16 x 7,0 | 10 x 7,0 |
| 12-19-350 | 12 | 19 | 35 | 350 | 34,13 | 200 | 7 x 7,0 | 4 x 7,0 |
| 12-19-500 | 12 | 19 | 35 | 500 | 48,75 | 200 | 12 x 7,0 | 6 x 7,0 |
| 13-19-350 | 13 | 19 | 36 | 350 | 36,93 | 220 | 7 x 7,0 | 4 x 7,0 |
| 13-19-500 | 13 | 19 | 36 | 500 | 52,75 | 220 | 12 x 7,0 | 6 x 7,0 |
| 13-22-850 | 13 | 22 | 39 | 850 | 89,68 | 220 | 16 x 7,0 | 12 x 7,0 |
| 14-19-350 | 14 | 19 | 38 | 350 | 39,73 | 240 | 7 x 7,0 | 6 x 7,0 |
| 14-19-500 | 14 | 19 | 38 | 500 | 56,75 | 240 | 12 x 7,0 | 8 x 7,0 |




### Telecommunication Poles ( STEL : L - 022 And L - 024 )

| No. | Type | L | OUTSIDE DIAMETER | | WALL THICKNESS | | PC - WIRE | HORIZONTAL LOAD (Kg) | | GROUND LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Da | Db | Ta | Tb | | | | |
| | | (m) | (mm) | (mm) | (mm) | (mm) | nos x dia | DESIGN | ULTIMATE | (m) |
| 1. | 7 -124 -150 | 7 | 124 | 232 | 40 | 40 | 4 ϕ 7 | 150 | 300 | 1.17 |
| 2. | 9 -124 -150 | 9 | 124 | 244 | 40 | 40 | 4 ϕ 7 | 150 | 300 | 1.50 |

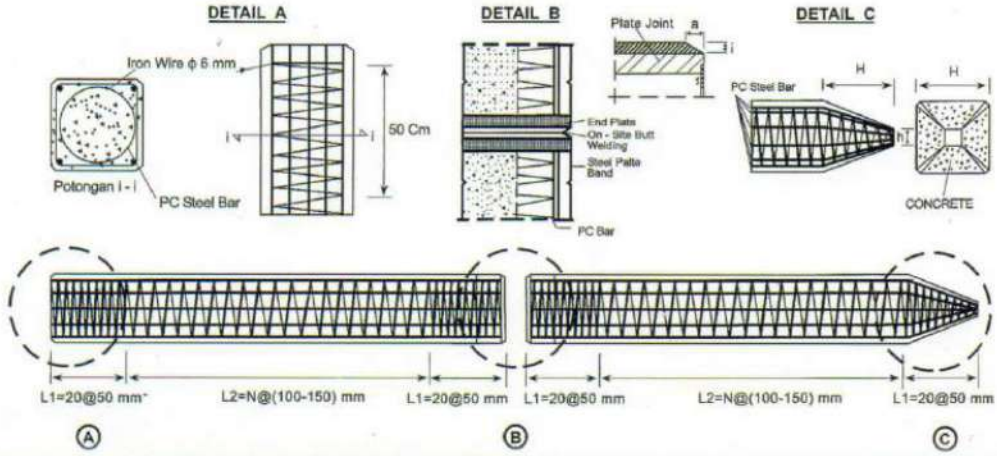
# PRESTRESSED CONCRETE SQUARE PILE

## SPECIFICATION STANDARD

| PILE SIZE | CROSS SECTION AREA | UNIT WEIGHT | AXIAL LOAD | NUMBER OF PC. BAR | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Pile Length | Cracking Moment | Pile Length | Cracking Moment | Pile Length | Cracking Moment |
| mm | $mm^2$ | kg/m | ton | Up to 12 m | t.m | 13-15m | t.m | 16-18 m | t.m |
| 300 x 300 | 90.000 | 216 | 117 | ϕ 7,0 x 8 | 3,0 | ϕ 7,0 x 10 | 3,5 | | |
| 350 x 350 | 122.500 | 294 | 160 | ϕ 7,0 x 10 | 5,0 | ϕ 7,0 x 12 | 5,5 | ϕ 7,0 x 14 | 6,0 |
| 400 x 400 | 160.000 | 384 | 208 | ϕ 7,0 x 12 | 7,0 | ϕ 7,0 x 14 | 7,5 | ϕ 7,0 x 16 | 8,0 |
| 450 x 450 | 202.500 | 486 | 257 | ϕ 9,0 x 14 | 10,0 | ϕ 7,0 x 16 | 10,5 | ϕ 7,0 x 18 | 11,0 |
| 500 x 500 | 250.000 | 600 | 318 | ϕ 9,0 x 18 | 13,5 | ϕ 9,0 x 16 | 14,0 | ϕ 9,0 x 18 | 14,5 |

- PC. Bar Standard JIS G 3137, Breaking Strength 145 kg/mm², - Concrete Strength K - 500 for 28 days ( Cube Test )
Note : Number of PC, Bar can be designed depend on technical requirement

| PlateThickness | a | i |
|---|---|---|
| 12 mm | 8 mm | 4 mm |
| 16 mm | 10 mm | 6 mm |




| H ( mm ) | h ( mm ) |
|---|---|
| 300 | 50 |
| 350 | 50 |
| 400 | 50 |
| 450 | 50 |
| 500 | 50 |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# CORRUGATED PC. SHEET PILE, JIS A 5326

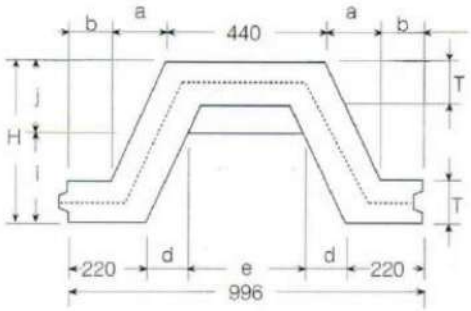
## Specification of Corrugated PC. Sheet Pile, JIS A 5326

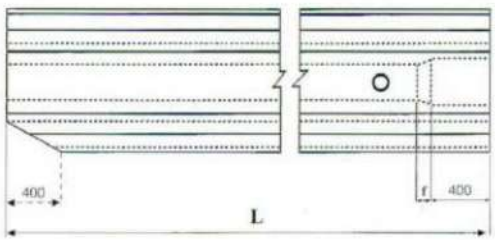
| Type | Height (mm) | Thickness (mm) | Width (mm) | Cracking Moment (t.m) | Length (meter) & Weight (ton) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 8 | 8,5 | 9 | 9,5 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| W-325-A-1000 | 325 | 120 | 1000 | 11,4 | 2.65 | 2.82 | 2.98 | 3.15 | 3.31 | 3.64 | 3.97 | 4.30 | 4.63 | | | | | | | |
| W-325-B-1000 | | | | 13,3 | 2.65 | 2.82 | 2.98 | 3.15 | 3.31 | 3.64 | 3.97 | 4.30 | 4.63 | | | | | | | |
| W-350-A-1000 | 350 | | | 15,6 | | | 3.32 | 3.50 | 3.69 | 4.05 | 4.42 | 4.79 | 5.15 | 5.52 | | | | | | |
| W-350-B-1000 | | | | 17,0 | | | 3.32 | 3.50 | 3.69 | 4.05 | 4.42 | 4.79 | 5.15 | 5.52 | | | | | | |
| W-400-A-1000 | 400 | | | 20,1 | | | | | 4.01 | 4.41 | 4.81 | 5.21 | 5.61 | 6.01 | 6.41 | | | | | |
| W-400-B-1000 | | | | 23,4 | | | | | 4.01 | 4.41 | 4.81 | 5.21 | 5.61 | 6.01 | 6.41 | | | | | |
| W-450-A-1000 | 450 | | | 26,9 | | | | | | 5.06 | 5.52 | 5.97 | 6.43 | 6.89 | 7.35 | 7.81 | | | | |
| W-450-B-1000 | | | | 30,7 | | | | | | 5.06 | 5.52 | 5.97 | 6.43 | 6.89 | 7.35 | 7.81 | | | | |
| W-500-A-1000 | 500 | | | 35,2 | | | | | | | | 5.92 | 6.38 | 6.83 | 7.29 | 7.74 | 8.20 | 8.65 | 9.11 | |
| W-500-B-1000 | | | | 40,4 | | | | | | | | 5.92 | 6.38 | 6.83 | 7.29 | 7.74 | 8.20 | 8.65 | 9.11 | |
| W-600-A-1000 | 600 | | | 50,6 | | | | | | | | | | 7.81 | 8.33 | 8.84 | 9.36 | 9.88 | 10.40 | 10.92 |
| W-600-B-1000 | | | | 59,6 | | | | | | | | | | 7.81 | 8.33 | 8.84 | 9.36 | 9.88 | 10.40 | 10.92 |

Remark : PC Sheet piles of this shape have no distinct demarcation between compression side and tension side in the section

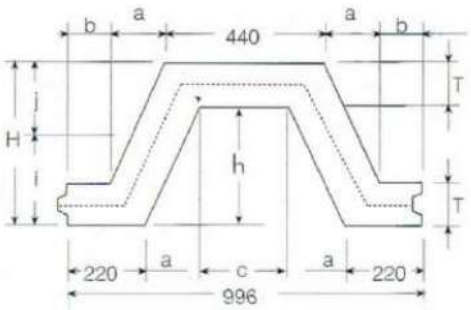
**Construction of Corrugated PC. Sheet Pile**

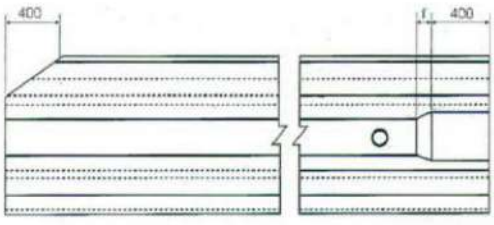
| Type | TOP END | | | | |
|---|---|---|---|---|---|
| | H | T | i | j | e |
| W-300-1000 | 300 | 110 | 100 | 200 | 362 |
| W325-A / B-1000 | 325 | 110 | 125 | 200 | 430 |
| W-350-A/ B-1000 | 350 | 120 | 150 | 200 | 404 |
| W-400-A/ B-1000 | 400 | 120 | 200 | 200 | 370 |
| W-450-A/ B-1000 | 450 | 120 | 250 | 200 | 322 |
| W-500-A/ B-1000 | 500 | 120 | 300 | 200 | 336 |
| W-600-A/ B-1000 | 600 | 120 | 400 | 200 | 306 |




| Middle Section | | | | | | Cross Section (m2) |
|---|---|---|---|---|---|---|
| a | b | c | d | h | f | |
| 97 | 181 | 362 | 97 | 190 | 100 | 0.1243 |
| 109 | 1609 | 338 | 63 | 215 | 100 | 0.1315 |
| 117.3 | 160.7 | 321.4 | 76 | 230 | 100 | 0.1468 |
| 130 | 148 | 296 | 93 | 280 | 100 | 0.1598 |
| 155 | 123 | 246 | 117 | 330 | 100 | 0.1835 |
| 140 | 138 | 276 | 110 | 380 | 100 | 0.1818 |
| 150 | 126 | 256 | 125 | 480 | 100 | 0.2078 |





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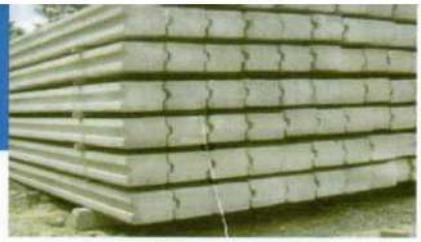
# FLAT TYPE PC SHEET PILE
# JIS A 5326



**Specification of Flat Type PC, Sheet Piles, JIS A 5326**

| Type Designation | Height *H* mm | Product width[1] mm | Cracking Moment[2] t.m | | Length ( meter ) & Weight ( ton ) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Per Sheet | Per m Width | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 |
| F-120-500 | 120 | 500 | 1.91 | 3.82 | 0.78 | 0.86 | 0.94 | 0.01 | 1.09 | 1.17 | 1.25 | 1.40 | | | | | |
| F-150-500 | 150 | | 3.00 | 6.00 | | | 1.17 | 1.27 | 1.37 | 1.46 | 1.56 | 1.76 | 1.95 | | | | |
| F-160-500 | 160 | | 3.50 | 7.00 | | | 1.25 | 1.36 | 1.46 | 1.56 | 1.66 | 1.87 | 2.08 | | | | |
| F-170-500 | 170 | | 3.88 | 7.76 | | | 1.33 | 1.35 | 1.46 | 1.56 | 1.66 | 1.87 | 2.08 | | | | |
| F-180-500 | 180 | | 4.20 | 8.40 | | | | | 1.64 | 1.76 | 1.87 | 2.11 | 2.34 | 2.57 | | | |
| F-190-500 | 190 | | 4.60 | 9.20 | | | | | 1.73 | 1.85 | 1.98 | 2.22 | 2.47 | 2.72 | | | |
| F-200-500 | 200 | | 5.19 | 10.4 | | | | | | | | 2.34 | 2.60 | 2.86 | 3.12 | 3.38 | |
| F-210-500 | 210 | | 5.90 | 11.8 | | | | | | | | 2.46 | 2.73 | 3.00 | 3.28 | 3.55 | 3.82 |
| F-220-500 | 220 | | 6.66 | 13.3 | | | | | 1,93 | 2,06 | 2,20 | 2,47 | 2,75 | 3,02 | 3,30 | 3,58 | 3,85 |
| F-320-500 | 320 | | 6.94 | 13.88 | | | | | 2,80 | 3,00 | 3,20 | 3,60 | 4,00 | 4,40 | 4,80 | 5,20 | 5,60 |

*Notes (1) : Product width is determined so as to realize the prescrib completed dimention at the time of execution taking into account an elongation of 4 mm in the joint.*

*(2) : The cracking moment is the bending moment guarantee that no crack occur over 0.05 mm in width.*

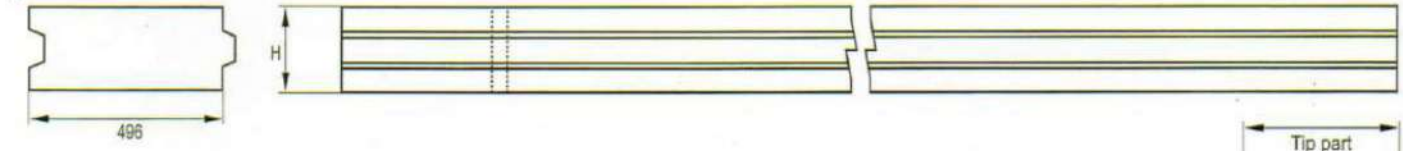
*Remark : PC Sheet piles of this shape have no distinct demarcation between compression side and tension side in the section.*

## Flat PC Sheet Piles (Width 500 mm)

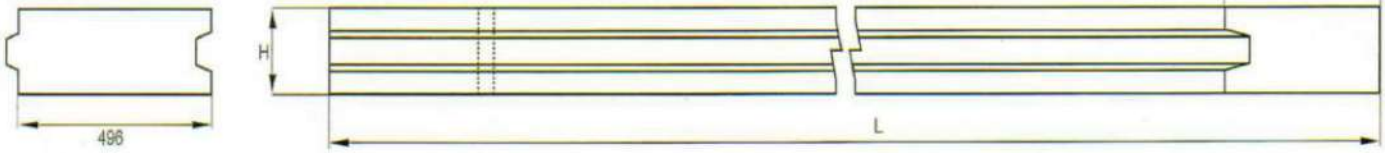
Unit : mm

*H* = 120 to 220

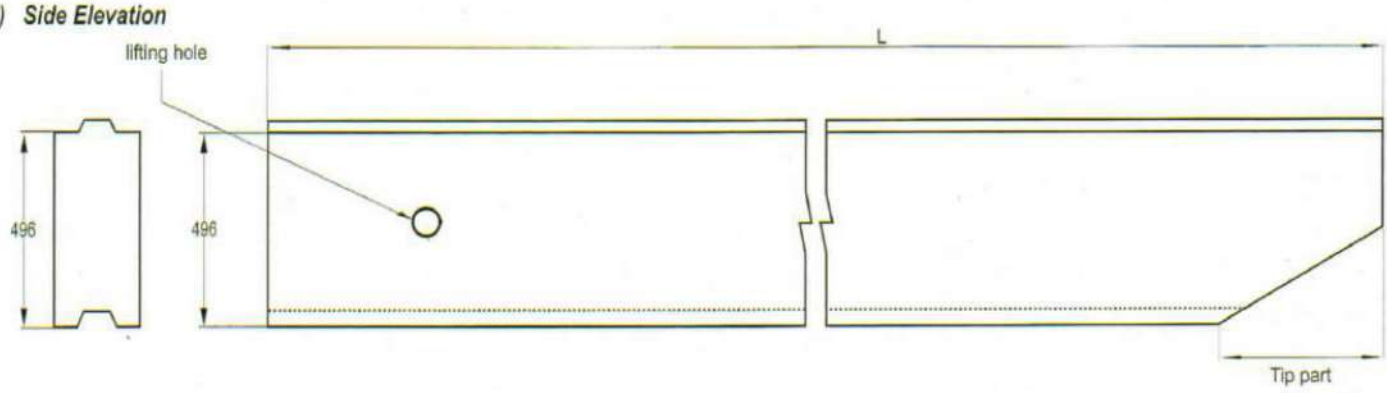
*(a) Section*




*(b) Plan*




*(c) Side Elevation*





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# PRESTRESSED CONCRETE SPUN PILES (JBI PILES) JIS. A 5335

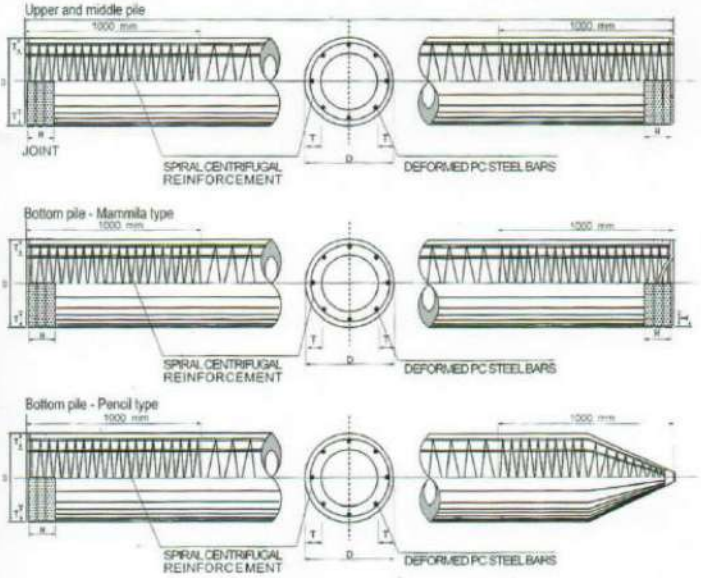
## Specification of Prestressed Concrete Spun Piles. JIS A 5335

| Outside Diameter (mm) | Type (Class) | Thickness (mm) | Cross Section Area (cm2) | Allowable Bearing Capacity (ton) | | Cracking Bending Moment | Ultimate Bending Moment | Length (meter) & Weight (ton) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ACI 543 | JIS A5335 | | | 7 m | 8 m | 9 m | 10 m | 11 m | 12 m | 13 m | 14 m | 15 m |
| 300 | A | 60 | 452.4 | 70 | 46 | 2.5 | 3.8 | 0.82 | 0.94 | 1.06 | 1.18 | 1.29 | 1.41 | 1.53 | | |
| | AB | | | | | 3.0 | 5.0 | | | | | | | | | |
| | B | | | | | 3.5 | 6.3 | | | | | | | | | |
| | C | | | | | 4.0 | 8.0 | | | | | | | | | |
| 350 | A | 65 | 582.0 | 90 | 59 | 3.5 | 5.2 | 1.06 | 1.21 | 1.36 | 1.51 | 1.66 | 1.81 | 1.97 | 2.12 | 2.27 |
| | AB | | | | | 4.0 | 7.1 | | | | | | | | | |
| | B | | | | | 5.0 | 9.0 | | | | | | | | | |
| | C | | | | | 6.0 | 12.0 | | | | | | | | | |
| 400 | A | 75 | 765.8 | 118 | 78 | 5.5 | 8.2 | 1.39 | 1.59 | 1.79 | 1.99 | 2.19 | 2.39 | 2.59 | 2.79 | 2.98 |
| | AB | | | | | 6.5 | 10.7 | | | | | | | | | |
| | B | | | | | 7.5 | 13.5 | | | | | | | | | |
| | C | | | | | 9.0 | 18.0 | | | | | | | | | |
| 450 | A | 80 | 929.9 | 143 | 95 | 7.5 | 11.2 | 1.69 | 1.93 | 2.17 | 2.42 | 2.66 | 2.90 | 3.14 | 3.38 | 3.62 |
| | AB | | | | | 9.0 | 15.5 | | | | | | | | | |
| | B | | | | | 11.0 | 19.8 | | | | | | | | | |
| | C | | | | | 12.5 | 25.0 | | | | | | | | | |
| 500 | A | 90 | 1,159.0 | 178 | 120 | 10.5 | 15.7 | 2.11 | 2.41 | 2.71 | 3.01 | 3.31 | 3.62 | 3.92 | 4.22 | 4.52 |
| | AB | | | | | 12.5 | 18.8 | | | | | | | | | |
| | B | | | | | 15.0 | 27.0 | | | | | | | | | |
| | C | | | | | 17.0 | 34.0 | | | | | | | | | |
| 600 | A | 100 | 1,570.8 | 242 | 161 | 17.0 | 25.5 | 2.86 | 3.27 | 3.67 | 4.08 | 4.49 | 4.90 | 5.31 | 5.71 | 6.12 |
| | AB | | | | | 20.0 | 35.3 | | | | | | | | | |
| | B | | | | | 25.0 | 45.0 | | | | | | | | | |
| | C | | | | | 29.0 | 58.0 | | | | | | | | | |
| 800 | A | 120 | 2,564.1 | 406 | 270 | 40.7 | 63.6 | 4.49 | 5.13 | 5.77 | 6.41 | 7.05 | 7.69 | 8.33 | 8.97 | 9.62 |
| | AB | | | | | 48.0 | 91.3 | | | | | | | | | |
| | B | | | | | 55.7 | 108.2 | | | | | | | | | |
| | C | | | | | 70.6 | 129.8 | | | | | | | | | |
| 1000 | A | 140 | 3,872.0 | 604 | 402 | 75.0 | 117.9 | 6.62 | 7.57 | 8.51 | 9.46 | 10.41 | 11.35 | 12.30 | 13.24 | 14.19 |
| | AB | | | | | 87.2 | 165.7 | | | | | | | | | |
| | B | | | | | 105.7 | 199.7 | | | | | | | | | |
| | C | | | | | 123.6 | 229.9 | | | | | | | | | |
| 1200 | A | 150 | 4,847.8 | 795 | 529 | 120.0 | 180.0 | 8.66 | 9.90 | 11.13 | 12.37 | 13.61 | 14.84 | 16.08 | 17.32 | 18.56 |
| | AB | | | | | 137.0 | 260.3 | | | | | | | | | |
| | B | | | | | 170.0 | 306.0 | | | | | | | | | |
| | C | | | | | 200.0 | 400.0 | | | | | | | | | |

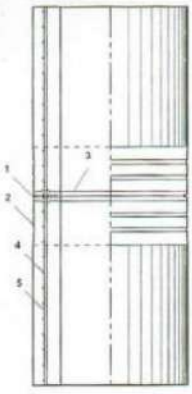
Note :
Concrete Strength fc' = 500 kg/cm2 (Cylinder Test), or equivalent to K - 600 (Cube Test)
Number of PC. Bar can be customized depend on technical requirement

## Construction of Prestressed Concrete Spun Piles

### CONSTRUCTION OF JBI PILES




### WELDED JOINT



1. On - Site butt Welding
2. Steel plate band
3. End Plate
4. Spiral Reinforcing
5. PC Steel Bar

### Calculation Of Bearing Capacity Dynamic Formula

$$Ra = \frac{2.W.H}{5.S + 0.1}$$

Ra = Allowable Bearing Capacity (ton)
W = Weight of Hammer (ton)
H = Height of ram stroke (m)
S = Final settlement of pile, determined as the average of the last 10 blows, (m)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# TRACK RECORD

PC Pile - Siam Maspion Polymer
Surabaya - East Java

PC Pole - Housing Electricity Project

PC. Sheet Pile (corrugated type) LNG
Bontang - East Kalimantan.

PC. Sheet Pile (flat type) Medan
Flood Control Project


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