



WINABUMI
SDN. BHD. (714955-A)

WINABUMI, SPUN PILE & POLE
SOLUTION PARTNER

PILE & POLE CATALOGUE



Our products are compliance with:



INTRODUCTION

WINABUMI Sdn. Bhd. is the first manufacturer of Prestressed Concrete (PC) Spun Pole in Sabah since 2006. Winabumi products covering power distribution projects (i.e SESB & KKLW) as well as telecommunication poles (i.e TM & CTS), supporting fiberization of field. In 2015, Winabumi Sdn. Bhd. constructs the first Prestressed High Strength Concrete (PHC) Spun Pile factory in Sabah and commences operation in the first quarter of 2016.

The construction of the modern factory utilizes latest technology, producing consistent and superior quality Spun Concrete Piles with concrete grade 80 and above. Winabumi is 100% local Sabah manufacturing company and utilizing best available local materials and manpower.

Vision

To become the Paramount and Trustworthy Solution Partner of Prestressed Spun Concrete Products locally and regionally.

Mission

- 1** To be most trustworthy local manufacturer in supporting and contributing to the infrastructure and Human Resource development in the state of Sabah.
- 2** To establish a strong distribution network and product marketing via various supply chains to create access for customers to recognize and benefits from our products and services.
- 3** To equip products with highest quality and workmanship by offering foremost commitment and consistent improvement on products and services.
- 4** To create optimum access and ensure utmost satisfaction to customers on concrete product unsurpassed quality and cost efficient solution.
- 5** To ensure concrete products quality and stock availability are competence with customers' demands and obligation.

Our Services

We offer total solution to our partner involving:

- a) Providing **Cost Effective Solution** for power distribution, telecommunications and construction for state of Sabah.
- b) Supplying **Just In Time (JIT) Solution** and ready stock for customers.
- c) **Cost saving Solution** for logistic and minimize storage expenses.
- d) **Flexible Solution** on for length changes of PHC Spun Pole for better time management and reasonable pricing.
- e) **Immediate Response Services Solution** at project site as and when required.

Our Milestone

2006

- Established its 1st PC Spun Pole plant in Inanam, Sabah

2007

- Supply its 1st PC Spun Pole to KKLW projects in Sabah

2009

- Appointed as Vendor of Sabah Electricity Sdn. Bhd.

2010

- ISO 9001:2008 Certified
- Succeeded to convinced SESB usage from majority Steel Pole to majority PC Spun Pole.

2013

- Sijil Guna Pakai certified by TNB Research Sdn.Bhd. (TNBR Quality Assurance & Testing Services)

2014

- Appointed as Preferred Vendor of Sabah Electricity Sdn. Bhd.

Our Experience

We are capable in producing 300mt per day for both PC Spun Poles & PHC Spun Piles for:

POLE

- **POWER DISTRIBUTION**
(Sabah Electricity Sdn. Bhd.)
- **TELECOMMUNICATION**
(Celcom Timur Sabah, Fibrecomm, Sedcomm, Telekom Malaysia)

PILE

- **DEVELOPER / CONTRACTOR**
(Gamuda Land, Vinci Construction Grand Project SB, Azam Jaya Properties SB, BCEG International(M) SB, Sinkong Construction SB, Pembinaan Gunong Emas SB, AEW Construction SB, Cement Industries Sabah, POIC Sabah SB, Sawit Kinabalu)
- **GOVERNMENT PROJECT**
(Jabatan Kastam Sabah, PDRM, JKR Sabah, Jabatan Kehakiman Syariah Negeri Sabah, SESB, Jabatan Agama Islam Sarawak, JKR Sarawak)

2016

- Started its 2nd PC Spun Pole & PHC Spun Pile plant in KKIP, Sabah
- SIRIM QAS Certified for PHC Spun Pile MS 1314: Part 4
- CIDB certified for Supply of Building Materials
- Supply its 1st PHC Spun Pile to Gamuda Land for Bukit Bantayan Residence Project in Inanam.
- Awarded as TM concrete poles supplier

2017

- ISO 9001:2015 Upgrading and Certified

2018

- Supplied PHC Spun Pile for JKR projects
- Supplied PHC Spun Pile to the 1st International company VINCI CONSTRUCTION GRANDS PROJETS S/B

Our Technology

Factory equipped with Semi Auto Machineries to facilitate the production activities to be carried out by the skilled and experience operators.



Batching Plant



Overhead Crane



Caging Machine



Buttonhead Machine



Spinning Machine



Stretching Machine



Wire Cutting Machine



Boiler



Air Compressor

PRODUCT STANDARD

Pre-stressed Concrete (PC) Spun POLE

Standards

Winabumi PC Spun Poles comply with JIS A 5309:1992 and also generally comply with all relevant standards.

Certification

Winabumi PC Spun Poles are certified by Sijil Guna Pakai and tested by SIRIM QAS international.

Materials

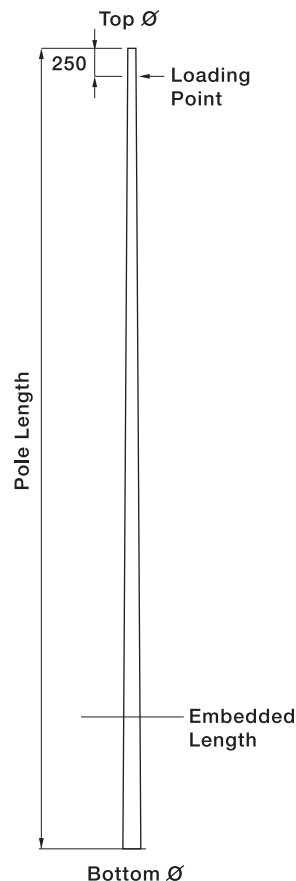
Aggregate – Coarse Aggregate shall not exceed 12mm & Fine Aggregate shall not exceed 5mm with proper mix of small and large sizes.

Cement – Portland cement comply with MS522:2007

Prestressing Steel – High frequency induction heat treated bars manufactured to JIS G 3536 or equivalent.

Reinforcing Steel – High frequency induction heat treated bars manufactured to JIS G 3532 or equivalent.

Spiral Wire – Hard drawn wire.



Concrete Strength

Minimum concrete cube strength: At transfer of pre-stress 25N/mm² and at 28 days - Grade50 pole 50N/ mm²

Lifting Points

For PC Spun poles up to 10m length, poles shall be lifted 0.2 from total length using sling at bothsides.

Curing

After casting, the poles are steam cured. When the concrete reaches the specified transfer strength, the poles are demoulded, marked and inspected for quality.

Identification

All Winabumi PC Spun Poles have the trademark stamped.



Standard Lengths

Winabumi Poles are available in length of 6.7m, 7.5m, 9.0m & 10m

Delivery

Winabumi Standard PC Spun poles are normally ready stock.












PC Spun Poles Specification

Power Distribution							
Item	Pole Type	Top Ø (mm)	Wall Thickness (mm)	Bottom Ø (mm)	*Est. Weight (kg)	Traverse Load	Specification
1	7.5m-10-1.1kN	100	30	175	210	1.1kN	As per Sabah Electricity Sdn. Bhd. & Tenaga Nasional Berhad (TNB)
2	9.0m-14-2.0kN	140	33	260	410	2.0kN	
3	10.0m-19-5.0kN	190	50	323	780	5.0kN	
4	10.0m-19-8.4kN	190	50	323	900	8.4kN	

* Tolerances weight at +15%

Telecommunication							
Item	Pole Type	Top Ø (mm)	Wall Thickness (mm)	Bottom Ø (mm)	Max. Typical Weight (kg)	Traverse Load	Specification
1	6.7m-10-0.8kN	100	30	167	158.2 -210.9	0.8kN	As per Telekom Malaysia Berhad
2	7.5m-10-1.1kN	100	30	175	202.7-270.3	1.1kN	
3	9.0m-14-2.0kN	140	33	260	394.8-526.4	2.0kN	

Advantages Analysis Between Types of Poles				
Description		Steel Pole	RC Concrete Pole	PC Spun Pole
Unsurpassed Durability		15 – 25 years	20 – 35 years	50 to 100 years
Low Lifetime Cost		Every 5 years	No	No
Earthing		Poor	Good	Good
Eco Friendly		Good	Good	Good
Weight		Good	Very poor	Poor
Fire Resistance		Average	Good	Good
Extreme Weather		Average	Good	Good
Strength		Average	Good	High
Cracking Resistance		Low	Good	High

PRODUCT STANDARD

Pre-stressed High Strength Concrete (PHC) Spun PILE

Standards

Winabumi Piles comply with MS1314:Part4: 2004 and also generally comply with all relevant standards.

Certification

Winabumi Piles are certified by SIRIM QAS International and CIDB Malaysia

Materials

Aggregate – Coarse Aggregate shall be 20mm & 10mm granite. Fine aggregate shall be clean river sand.

Cement – Portland cement comply with MS522:2007

Prestressing Steel – High frequency induction heat treated bars manufactured to JIS G 3137:1994 or equivalent.

Spiral Wire – Hard drawn wire.

Concrete Strength

Minimum concrete cube strength: At transfer of prestress 30N/mm² and at 28 days-Grade80 pole 80N/mm² by cube.

Joint

The joint is designed to have the same performance as the main body particularly in respect of bending strength. All Winabumi Piles have steel extension plates for splicing.

Lifting Points

For piles up to 12m length, piles shall be lifted by using steel hooks at both ends.

Pile Shoe

All Winabumi Piles will be supplied either open ended, with a flat shoe or with a X-pointed shoe.

Curing

After casting, the piles are steam cured. When the concrete reaches the specified transfer strength, the piles are demolded, marked and inspected for quality. The piles can normally be transported and driven after 10 days from the date of casting, or when the cube strength reaches 80N/mm².

Identification

All Winabumi Piles have the trademark stamped as follows :

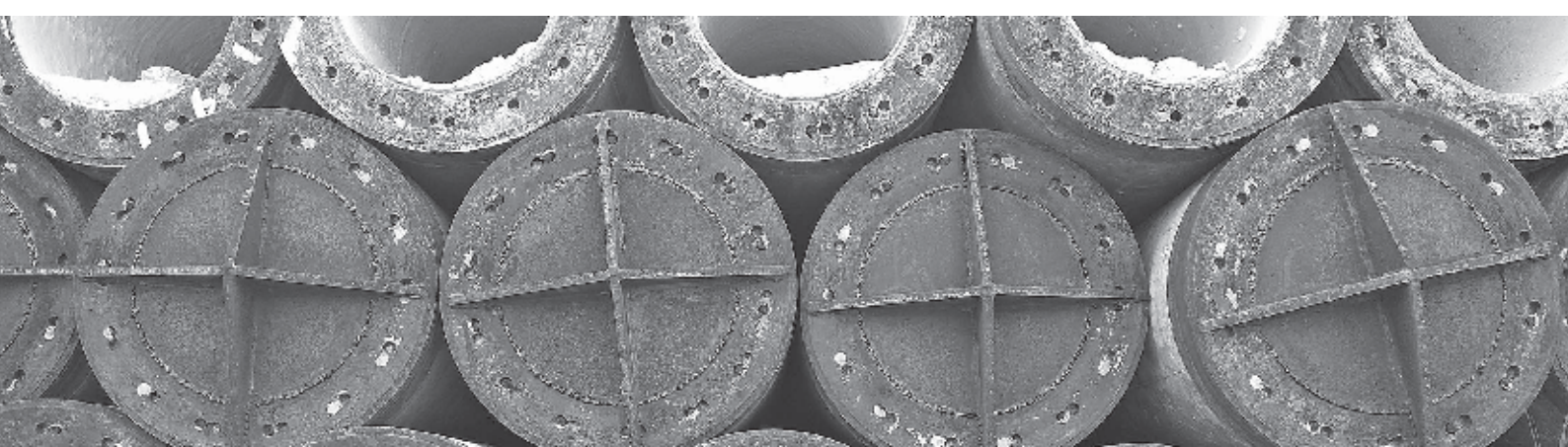


Standard Length

Winabumi Piles are available in length of 6m, 9m & 12m.

Delivery

Winabumi Standard piles are normally ready stock. Custom made piles usually takes two to three weeks from date of confirmed order.



PHC Spun Piles Specification

Class A (Effective Prestress 4.0N/mm ²)									
Pile Diameter	Pile Length	Nominal Wall Thickness	Nominal Weight	Tendon		Area of Concrete	Proposed Axial Load	Bending Moment	
				Size	Nos			Crack	Ultimate
mm	m	mm	kg/m	mm	No.	mm ²	Ton	kN.m	kN.m
300	6,9,12	60	122	7.1	6	45,239	86	23.7	35
350	6,9,12	60	156	7.1	8	54,664	103	35.8	56.1
400	6,9,12	65	216	7.1	8	80,425	130	49.5	65.7
450	6,9,12	70	250	7.1	10	83,566	159	68.9	94.3
500	6,9,12	80	308	7.1	12	105,558	201	95.9	125.5
600	6,9,12	90	420	9	12	144,199	272	165.7	239

Class B (Effective Prestress 5.0N/mm ²)									
Pile Diameter	Pile Length	Nominal Wall Thickness	Nominal Weight	Tendon		Area of Concrete	Proposed Axial Load	Bending Moment	
				Size	Nos			Crack	Ultimate
mm	m	mm	kg/m	mm	No.	mm ²	Ton	kN.m	kN.m
*250	6,9,12	55	91	7.1	6	33,694	63	15.9	27.9
*300	6,9,12	60	122	7.1	7	45,239	85	25.4	40.8
350	6,9,12	70	156	7.1	9	61,575	115	40	59.5
400	6,9,12	80	216	7.1	12	80,425	151	60.3	93.1
*450	6,9,12	80	250	9	8	92,991	174	81.8	117.1
*500	6,9,12	90	308	9	10	115,925	217	112.9	161.4
*600	6,9,12	100	420	9	14	157,080	295	188.3	273.1

*Immediate stock available at KKIP factory, Telipok, Kota Kinabalu, Sabah

Class C (Effective Prestress 7.0N/mm ²)									
Pile Diameter	Pile Length	Nominal Wall Thickness	Nominal Weight	Tendon		Area of Concrete	Proposed Axial Load	Bending Moment	
				Size	Nos			Crack	Ultimate
mm	m	mm	kg/m	mm	No.	mm ²	Ton	kN.m	kN.m
250	6,9,12	55	91	7.1	7	33,694	61	18.3	31.7
300	6,9,12	60	122	7.1	10	45,239	82	30.6	54.8
350	6,9,12	70	156	9	8	61,575	112	47.5	83.6
400	6,9,12	80	216	9	12	80,425	147	72.9	137.3
450	6,9,12	80	250	9	12	92,991	170	95.6	165
500	6,9,12	90	308	9	15	115,925	211	131.6	227
600	6,9,12	100	420	9	20	157,080	287	221.4	375.4















Class	Diameter Ø(mm)	Length (mm)
A	300, 350, 400, 450, 500, 600	6, 9, 12
B	*250, *300, 350, 400, *450, *500, *600	6, 9, 12
C	250, 300, 350, 400, 450, 500, 600	6, 9, 12

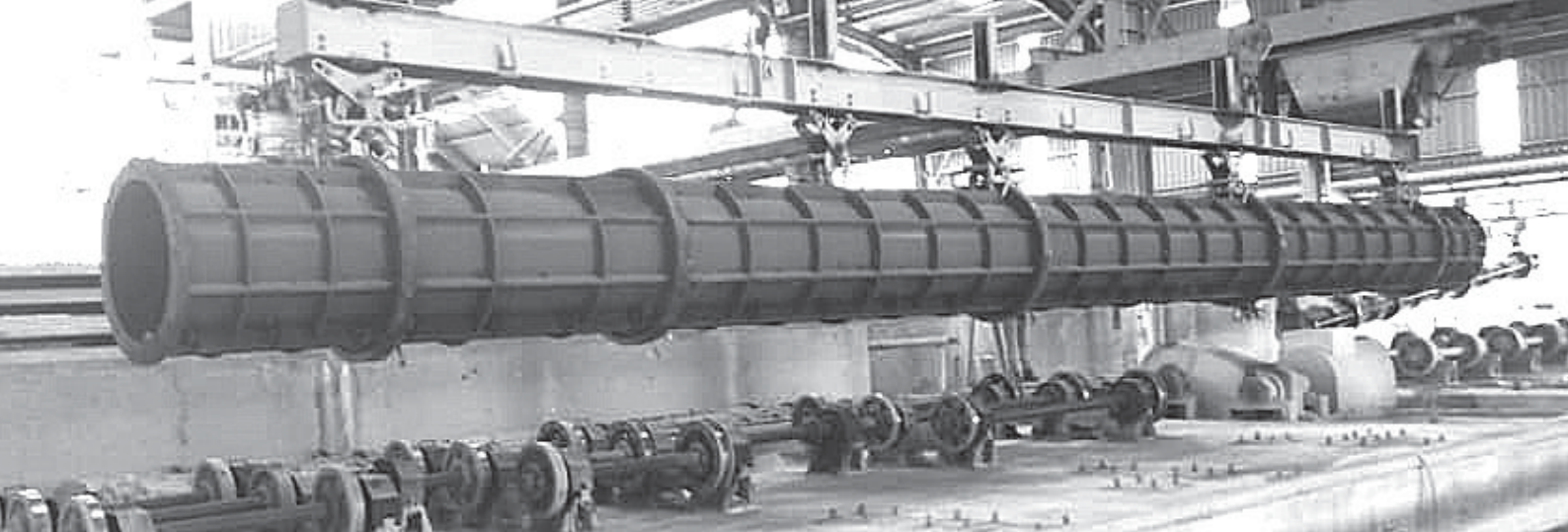
* Immediate Stock available at KKIP factory, Telipok, Kota Kinabalu, Sabah

Formula for Axial Load
Based on BS 8004:1986, the maximum allowable axial stress that may be applied to a pile acting as shrut should be one Quarter of (specified works cube strength at 28 days less the prestress after losses)

$$N = f_{cu} \times A$$

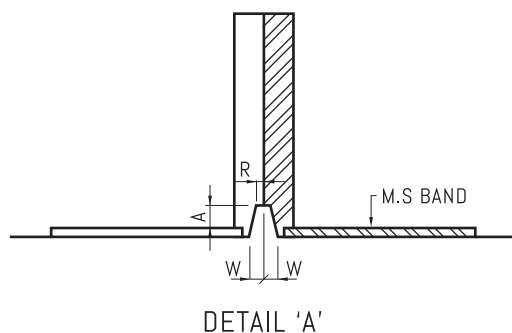
$$= \frac{1}{4} (f_{cu} - f_{pe}) \times A$$
Where, N = maximum allowable axial load
A = cross section area of concrete
 f_{cu} = permissible compressive strength of concrete
 f_{cu} = specified compressive strength of concrete
 f_{pe} = effective prestress in concrete

Advantages Analysis Between Types of Piles		
Description	RC Concrete Pile	Prestressed Spun Concrete Pile
Concrete Grade 	Normal G45	High G80
Axial Load Capacity 	High due to large concrete surface	High due to high concrete grade
Compaction Quality 	Low due to Poker Vibration	High due to Centrifugal Force
Porosity 	High concrete porosity	Low concrete porosity
Caging Consistency 	Low consistency due to manual tying (human dependent)	High consistency due to Automatic Caging Machine
Caging Rigidity 	Low rigidity due to manual tying with GI Wire	High rigidity due to Automatic Machine welding joint
Jointing 	Higher percentage of misalignment	Low percentage of misalignment
End Plate Square-ness 	Low due to straightness less than 90°	High due to straightness at 90° (prestress force)
Cracking Moment 	Low due to non pre-stressed	High due to pre-stressed force in concrete
Ultimate Moment 	Normal as there is no tensile tendon applied	High due to high tensile tendon applied
Quality Control 	Lower control as it is normally cast in open yard, very much depends on operator's skill & high possibility of poor concrete segregation	High as it is manufactured under shed factory condition and automated machineries
Durability 	Normal due to lower concrete density	High due to high concrete density
Weight 	Higher as it is solid	Lower as it is hollow
Logistic Cost 	Higher as it has higher concrete weight	Lower as less unit weight



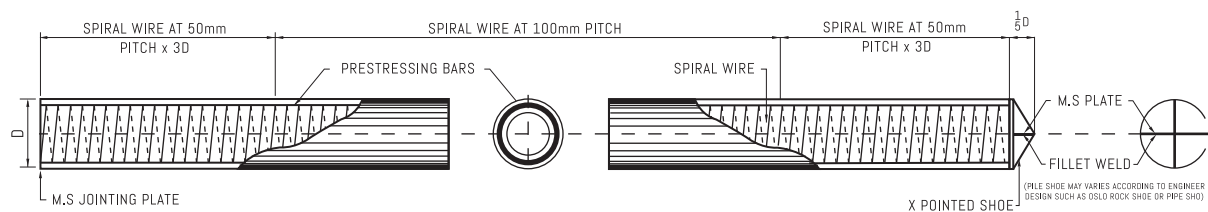
Sectional Details of Winabumi Piles

Joint Welding Details

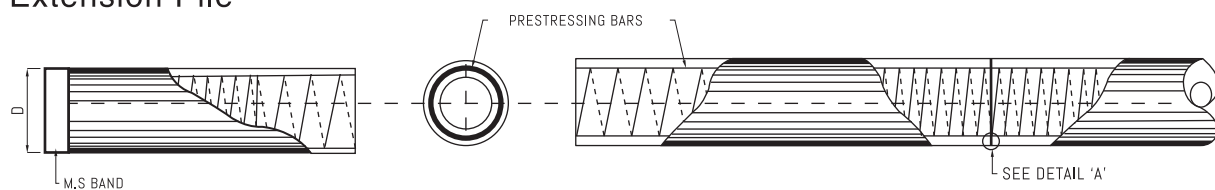


Diameter of Pile	Throat Thickness A	W	Root R
mm	mm	mm	mm
250	8.5	4.0	2.0
300	8.5	4.0	2.0
350	8.5	4.0	2.0
400	10	4.5	2.0
450	10	4.5	2.0
500	12	5.0	2.0
600	12	5.0	2.0

Starter Pile



Extension Pile



MANUFACTURING PROCESS OF PHC PILE AND PC POLE



Concrete Batching Plant



Wire Cutting



Caging Fabrication



Caging on Mold



Caging Assembly



Concreting



Stretching



Spinning



Quality Inspection



Demolding



Curing



Stockyard

RECOGNITION & CERTIFICATION



PUKONSA

PUSAT PENDAFTARAN KONTRAKTOR KERJA
BEKALAN DAN PERKHIDMATAN NEGERI SABAH
KEMENTERIAN KEWANGAN
SABAH



CLIENT TESTIMONY





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