ICP PILES

HIGH PERFORMANCE PRETENSIONED
SPUN CONCRETE PILES

WE DELIVER
TRUSTED FOUNDATION

FIRST PILE
MANUFACTURER AWARDED
GREEN CERTIFICATION

SIRIM
ECO-LABEL

THE MALAYSIA BOOK of RECORDS

LONGEST SINGLE LENGTH
SPUN CONCRETE PILE 2023

LONGEST PREJOINED
SPUN CONCRETE PILE 2025

An IJM Company

ICP PILES

We Deliver | Trusted Foundation

Introduction

Established in 1977, Industrial Concrete Products (ICP Piles) pioneered the commercial manufacturing of High Performance Pretensioned Spun High Strength Concrete (PHC) Piles in Malaysia. With over 50 years of experience, ICP Piles has grown to become Malaysia's largest spun pile manufacturer with the country's first SMART manufacturing facility, as well as one of the largest spun pile manufacturers in Southeast Asia.

Today, ICP Piles operates ten factories nationwide and exports to Singapore, Brunei, Indonesia, Myanmar, Vietnam, Bangladesh, India, Maldives, Pakistan, China, Bahrain, Saudi Arabia, Iran, United Kingdom, Canada, USA, Tanzania, Samoa and still growing.

AREAS OF APPLICATION

- Building Foundation (Residential, Commercial, High-Rise Developments)
- Industrial, Data Center & Warehousing Facilities (Heavy Industries, Warehouse, Data Center)
- Infrastructure (Road, Railway, Flyover)
- Renewable Energy (Solar Farms & Wind Turbine)
- Marine Structures (Port, Jetty, Bridge, Breakwater)
- Piled Embankments

PRODUCT ATTRIBUTES

- Highly durable concrete with enhanced corrosion resistance.
- High bending strength with Prestressed Concrete Technology.
- Rapid production and fast delivery.
- High concrete strength for hard strata driving.
- Material efficient and eco-friendly foundation.
- Customisable to project needs

ICP PILES FACTORY LOCATIONS

General Specification

STANDARDS

ICP Piles comply with MS 1314 : Part 4:2004 and JIS A 5373:2016. ICP Piles are modified to suit BS 8004:2015 + A1 2020 on foundations and BS EN 1992 -1-1:2023 on structural use of concrete. Concrete compiles with SS EN 206: 2014 - Specification of concrete.

MATERIALS

Aggregates – Coarse and fine aggregates comply with MS EN 12620:2002 + A1: 2008.
Cement – Portland cement complies with MS EN 197 -1 : 2014.
Prestressing Steel – High frequency induction heat treated bars manufactured to JIS G 3137: 1994 and MS 1138:2023.
Spiral Wire – Hard drawn wire complies with BS 4482:2005.

CONCRETE STRENGTH

Minimum concrete cube strength:

at transfer of prestress		30N/mm²
at 28 days	- Grade 80 pile	80N/mm²
	- Grade 90 pile	90N/mm²
	- Grade 100 pile	100N/mm²
	- Grade 110 pile	110N/mm²

PILE LENGTHS

Standard Lengths – 6 m, 9 m and 12 m
Custom Lengths – Single pile up to 54m and pre-joined piles up to 90m, subject to limitations and project requirements.

JOINT

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

LIFTING POINTS

Piles up to 12m – Piles shall be lifted by using steel hooks at both ends.
Piles over 12m – Piles shall be lifted in accordance with an approved lifting method, taking into consideration the pile length, lifting configuration and available handling equipment.

PILE SHOE

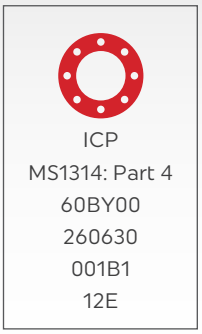
All ICP Piles will be supplied either open ended, with a flat shoe or with other type of shoes such as x-pointed shoe, rock shoe and pipe shoe.

IDENTIFICATION

ICP Piles standard marking:

Company's Initial
Malaysian Standard
Pile Size and Class
Date of Cast (yy/mm/dd)
Serial No & Factory Code
Pile Length and Type

Other markings:
S - Starter (Flat Shoe/X-Pointed Shoe/Rock Shoe/Pipe Shoe)
E - Extension
B8 - Class B, Grade 80
B9 - Class B, Grade 90
BX - Class B, Grade 100
BY - Class B, Grade 110



Logo as Trademark

DELIVERY

ICP Piles can be transported and driven **3 days** after casting or once cube strength reaches 70N/mm². Standard piles are normally available ex-stock.

TECHNICAL DATA

Technical data of our standard piles are given in the tables on the next page. Please note that the axial loads represent the structural capacities of the piles. Actual working load depends on the soil conditions and the pile slenderness ratio. Appropriate reduction of axial loads should be applied for:

a) marine structures;
b) piles subjected to bending;
c) high upstand;
d) piles driven through very poor top stratum;
e) raking piles, etc.

DEFINITIONS

ICP Piles or ICP PHC Piles: High Performance Pretensioned Spun High Strength Concrete Piles
MS: Malaysian Standard
JIS: Japanese Industrial Standard
BS: British Standard
SS EN: Singapore Standard

QUALITY SYSTEM SIRIM
UKAS MANAGEMENT SYSTEMS 074

CERTIFIED TO ISO 9001:2015
CERT. NO. : QMS00120

Project Highlights

West Coast Expressway (WCE)

Microsoft Data Center, Selangor

The Light City , Penang

DayOne Nusajaya Tech Park, Johor

99 Residence, Kuala Lumpur

East Coast Rail Link (ECRL)

Methanol Product Export Jetty, Sarawak

Batang Lupar Bridge, Sarawak

Stadium Sultan Ibrahim, Johor

Wind Turbine by CEFORE, Terengganu

Vitrox Factory, Penang

Club Mediterranean, Maldives

Florida, USA

Garden By The Bay, Singapore

Mongla Port, Bangladesh

Shebara Resort, Saudi Arabia

Temburong Bridge, Brunei

Neste Oil Factory, Singapore

AMI's Aluminium Smelter Jetty, Indonesia

ICP Piles Specification (British Standard)

Based on BS 8004:1986, the maximum allowable axial stress that may be applied to a pile acting as a short strut should be one quarter of specified works cube strength at 28 days less the prestress after losses.

FORMULA FOR AXIAL LOAD (BS 8004:1986)

$$N = 1/4\ (f_{cu} - f_{pe})\ x\ A$$

Where, **N** = maximum allowable axial load
A = cross section area of concrete *fca*
fcu = specified compressive strength of concrete
fpe = effective prestress in concrete

CLASS B (STANDARD PILE)

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar			Area of Concrete	Section Modulus	Bending Moment		Recommended Max Structural Axial Working Load (For a short strut)	Effective Prestress	Concrete Grade
				7.1mm	9.0mm	10.7mm			Cracking	Ultimate			
mm	mm	m	kg/m	no.	no.	no.	mm²	x1000 mm³	kNm	kNm	ton	N/mm²	N/mm²
250	55	6-12	88	6	-	-	33,694	1,435	14.9	29.0	63	6.4	80
									15.3	29.0	72	6.4	90
									16.1	29.0	80	6.4	100
									16.1	29.0	89	6.5	110
300	60	6-12	118	7	-	-	45,239	2,383	22.9	40.6	86	5.6	80
									23.6	40.6	97	5.6	90
									24.2	40.6	109	5.6	100
									24.7	40.6	120	5.7	110
350	70	6-12	160	9	-	-	61,575	3,778	35.6	60.8	117	5.4	80
									36.6	60.8	133	5.4	90
									37.5	60.8	148	5.4	100
									38.4	60.8	164	5.4	110
400	80	6-15	209	12	-	-	80,425	5,643	53.7	92.7	153	5.5	80
									55.2	92.7	173	5.5	90
									56.6	92.7	194	5.5	100
									57.9	92.7	214	5.5	110
450	80	6-15	242	-	8	-	92,991	7,624	69.3	111.2	178	5.1	80
									71.3	111.2	201	5.1	90
									73.2	111.2	225	5.1	100
									75.0	111.2	249	5.1	110
500	90	6-15	301	-	10	-	115,925	10,518	95.9	154.5	221	5.1	80
									98.7	154.5	251	5.1	90
									103.7	154.5	280	5.1	100
									103.7	154.5	310	5.1	110
600	100	6-18	408	-	14	-	157,080	17,546	163.1	259.6	299	5.3	80
									167.7	259.6	339	5.3	90
									176.1	259.6	379	5.3	100
									176.1	259.6	419	5.3	110
700	110	6-18	530	-	20	-	203,889	27,131	264.0	432.6	386	5.7	80
									271.3	432.6	437.9	5.7	90
									278.1	432.6	489.7	5.8	100
									284.5	432.6	541.6	5.8	110
800	120	6-18	667	-	24	-	256,354	39,455	375.5	593.3	487	5.5	80
									386.0	593.3	551.9	5.5	90
									395.8	593.3	617.2	5.5	100
									405.1	593.3	682.4	5.6	110
900	130	6-18	818	-	28	-	314,473	54,942	510.3	778.7	599	5.3	80
									524.9	778.7	678.9	5.3	90
									538.5	778.7	758.9	5.3	100
									551.3	778.7	839.0	5.3	110
1000	140	6-18	983	-	-	24	378,248	74,056	688.9	1042.8	720	5.3	80
									708.5	1042.8	816.5	5.3	90
									726.8	1042.8	912.7	5.3	100
									744.1	1042.8	1009.0	5.3	110
1200	150	6-18	1286	-	-	36	494,801	120,188	1198.5	1877.1	934	6.0	80
									1231.1	1877.1	1059.5	6.0	90
									1261.5	1877.1	1185.4	6.0	100
									1290.1	1877.1	1311.2	6.0	110

CLASS A (SPECIAL PILE)

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar			Area of Concrete	Section Modulus	Bending Moment		Recommended Max Structural Axial Working Load (For a short strut)	Effective Prestress	Concrete Grade
				7.1mm	9.0mm	12.6mm			Cracking	Ultimate			
mm	mm	m	kg/m	no.	no.	no.	mm^2	x1000 mm^3	kNm	kNm	ton	N/mm^2	N/mm^2
350	80	6-12	176	9	-	-	67,858	3,950	35.4	60.8	130	4.9	80
							67,858	3,950	36.5	60.8	147	5.0	90
							67,858	3,950	37.4	60.8	164	5.0	100
							67,858	3,950	38.3	60.8	182	4.9	110
400	90	6-15	228	12	-	-	87,650	5,872	53.5	92.7	167	5.1	80
	100		245				94,248	6,044	53.1	92.7	181	4.8	
	90		228				87,650	5,872	55.0	92.7	190	5.1	90
	100		245				94,248	6,044	54.7	92.7	205	4.8	
	90		228				87,650	5,872	56.5	92.7	212	5.1	100
	100		245				94,248	6,044	56.2	92.7	229	4.8	
	90		228				87,650	5,872	57.8	92.7	234	5.1	110
	100		245				94,248	6,044	57.6	92.7	253	4.8	
450	90	6-15	265	-	8	-	101,788	7,996	69.5	111.2	195	4.7	80
	100		286				109,956	8,292	69.5	111.2	212	4.4	
	105		296				113,804	8,414	69.4	111.2	220	4.2	
	90		265				101,788	7,996	71.6	111.2	221	4.7	90
	100		286				109,956	8,292	71.7	111.2	240	4.4	
	105		296				113,804	8,414	71.6	111.2	249	4.2	
	90		265				101,788	7,996	73.6	111.2	247	4.7	100
	100		286				109,956	8,292	73.7	111.2	268	4.4	
	105		296				113,804	8,414	73.6	111.2	278	4.3	
	90		265				101,788	7,996	75.4	111.2	273	4.7	110
	100		286				109,956	8,292	75.6	111.2	296	4.4	
	105		296				113,804	8,414	75.5	111.2	307	4.3	
500	100	6-15	327	-	10	-	125,664	10,972	96.2	154.5	241	4.7	80
	110		350				134,774	11,341	96.2	154.5	260	4.5	
	115		362				139,094	11,497	96.0	154.5	268	4.3	
	100		327				125,664	10,972	99.1	154.5	273	4.8	90
	110		350				134,774	11,341	99.1	154.5	294	4.5	
	115		362				139,094	11,497	99.0	154.5	304	4.3	
	100		327				125,664	10,972	101.7	154.5	305	4.8	100
	110		350				134,774	11,341	101.8	154.5	328	4.5	
	115		362				139,094	11,497	101.8	154.5	339	4.4	
	100		327				125,664	10,972	104.3	154.5	337	4.8	110
	110		350				134,774	11,341	104.4	154.5	362	4.5	
	115		362				139,094	11,497	104.4	154.5	375	4.4	
600	110	6-18	440	-	14	-	169,332	18,302	163.9	259.6	324	4.9	80
	120		470				180,956	18,945	164.2	259.6	348	4.6	
	125		485				186,532	19,228	164.3	259.6	359	4.5	
	110		440				169,332	18,302	168.7	259.6	367	5.0	90
	120		470				180,956	18,945	169.2	259.6	394	4.7	
	125		485				186,532	19,228	169.3	259.6	406	4.5	
	110		440				169,332	18,302	173.2	259.6	410	5.0	100
	120		470				180,956	18,945	173.8	259.6	440	4.7	
	125		485				186,532	19,228	173.9	259.6	454	4.6	
	110		440				169,332	18,302	177.4	259.6	453	5.0	110
	120		470				180,956	18,945	178.1	259.6	486	4.7	
	125		485				186,532	19,228	178.3	259.6	501	4.6	

CLASS C (MARINE PILE)

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar				Area of Concrete	Section Modulus	Bending Moment		Recommended Max Structural Axial Working Load (For a short strut)	Effective Prestress	Concrete Grade
				7.1mm	9.0mm	10.7mm	12.6mm			Cracking	Ultimate			
mm	mm	m	kg/m	no.	no.	no.	no.	mm^2	x1000 mm^3	kNm	kNm	ton	N/mm^2	N/mm^2
250	55	6-12	88	7	-	-	-	33,694	1,443	16.2	33.8	63	7.2	80
300	60	6-12	118	10	-	-	-	45,239	2,416	28.0	57.9	84	7.6	
350	70	6-15	160	-	8	-	-	61,575	3,826	43.0	86.5	114	7.2	
400	80	6-15	209	-	12	-	-	80,425	5,748	69.7	148.3	147	8.1	
450	80	6-15	242	-	12	-	-	92,991	7,734	86.9	166.9	173	7.2	
500	90	6-18	301	-	15	-	-	115,925	10,670	120.3	231.7	215	7.3	
600	100	6-30	408	-	20	-	-	157,080	17,773	198.0	370.8	292	7.1	
700	110	6-46	530	-	-	20	-	203,889	27,498	320.6	608.3	376	7.6	
800	120	6-46	667	-	-	24	-	256,354	39,966	454.7	834.3	475	7.4	
900	130	6-54	818	-	-	28	-	314,473	55,622	616.2	1095.0	585	7.1	
1000	140	6-54	983	-	-	36	-	378,248	75,188	862.8	1564.3	699	7.5	
							34	378,248	76,247	961.1	2051.9	688	8.6	
1200	150	6-42	1286	-	-	46		494,801	121,361	1376.5	2398.6	917	8.6	
				-	-	-	46	494,801	123,457	1583.1	3331.3	898	8.6	

ICP Piles Specification (Euro Code)

Generally, the recommended axial working load shall be determined by applying a safety factor of 2 to the stated ultimate structural axial capacity. Under Eurocode 7 Design Approach 1 Combination 2 (DA1 C2), the pile capacity shall be determined based on the geotechnical pile capacity.

FORMULA FOR ULTIMATE STRUCTURAL AXIAL CAPACITY (EN 1992-1-1)

$$N_{Ult} = \text{Min}\{0.60f_{ck} ; (f_{cd} - f_{pe})\} \times A_c$$

Where,
- N_{Ult} = Ultimate Structural Capacity
- f_{pe} = Effective Prestress after Losses
- A_c = Cross-Section Area of Concrete
- k_t = Factor of concrete strength at age > 28 days
- f_{cd} = Design Compressive Strength of Concrete, $f_{cd} = k_t \cdot \alpha_{cc} \cdot f_{ck} / \gamma_c$
- f_{ck} = Characteristic Compressive Concrete Cylinder Strength
- γ_c = Partial Safety Factor for Concrete
- α_{cc} = Coefficient taking account of long-term effects on compressive strength

CLASS B (STANDARD PILE)

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar			Area of Concrete	Section Modulus	Bending Moment		Unfactored Tension Capacity	Ultimate Structural Axial Capacity	Effective Prestress	Concrete Grade
				7.1mm	9.0mm	10.7mm			Cracking	Ultimate				
mm	mm	m	kg/m	no.	no.	no.	mm^2	x1000 mm^3	kNm	kNm	ton	ton	N/mm^2	N/mm^2
250	55	6-12	88	6	-	-	33,694	1,435	18.0	30.1	22	127	6.5	C65/80
									18.3	30.1	22	150	6.4	C75/90
									18.3	30.1	22	173	6.4	C85/100
									19.0	30.1	22	196	6.4	C95/110
300	60	6-12	118	7	-	-	45,239	2,383	27.4	42.6	26	174	5.7	C65/80
									28.0	42.6	26	205	5.6	C75/90
									28.5	42.6	26	235	5.6	C85/100
									29.1	42.6	26	263	5.6	C95/110
350	70	6-12	160	9	-	-	61,575	3,778	41.6	63.7	34	238	5.4	C65/80
									42.4	63.7	34	280	5.4	C75/90
									43.3	63.7	33	320	5.3	C85/100
									44.2	63.7	33	358	5.3	C95/110
400	80	6-15	209	12	-	-	80,425	5,643	61.6	97.0	45	310	5.5	C65/80
									62.8	97.0	45	365	5.5	C75/90
									64.1	97.0	45	418	5.5	C85/100
									65.3	97.0	45	467	5.5	C95/110
450	80	6-15	242	-	8	-	92,991	7,624	78.4	117.9	48	362	5.1	C65/80
									80.0	117.9	48	426	5.1	C75/90
									81.6	117.9	48	483	5.1	C85/100
									83.2	117.9	48	540	5.0	C95/110
500	90	6-15	301	-	10	-	115,925	10,518	106.1	163.4	61	451	5.1	C65/80
									108.2	163.4	60	530	5.1	C75/90
									110.3	163.4	60	603	5.1	C85/100
									112.4	163.4	60	674	5.1	C95/110
600	100	6-18	408	-	14	-	157,080	17,546	172.4	276.1	85	609	5.3	C65/80
									175.5	276.1	85	716	5.3	C75/90
									178.7	276.1	85	817	5.3	C85/100
									181.9	276.1	84	913	5.3	C95/110
700	110	6-18	530	-	20	-	203,889	27,131	281.2	461.9	122	779	5.9	C65/80
									286.1	461.9	121	918	5.8	C75/90
									290.9	461.9	121	1057	5.8	C85/100
									295.8	461.9	121	1185	5.8	C95/110
800	120	6-18	667	-	24	-	256,354	39,455	399.3	635.4	147	986	5.6	C65/80
									406.4	635.4	146	1160	5.6	C75/90
									413.6	635.4	146	1333	5.6	C85/100
									420.7	635.4	145	1490	5.6	C95/110
900	130	6-18	818	-	28	-	314,473	54,942	542.0	835.9	172	1217	5.4	C65/80
									552.0	835.9	171	1431	5.3	C75/90
									562.0	835.9	171	1635	5.3	C85/100
									572.0	835.9	170	1827	5.3	C95/110
1000	140	6-18	983	-	-	24	378,248	74,056	732.2	1122.6	208	1463	5.4	C65/80
									745.8	1122.6	207	1721	5.4	C75/90
									759.3	1122.6	206	1966	5.4	C85/100
									772.7	1122.6	206	2198	5.3	C95/110
1200	150	6-18	1286	-	-	36	494,801	120,188	1282.4	2035.0	311	1874	6.2	C65/80
									1304.2	2035.0	310	2212	6.2	C75/90
									1326.0	2035.0	309	2549	6.1	C85/100
									1347.6	2035.0	308	2875	6.1	C95/110

CLASS A (SPECIAL PILE)

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar		Area of Concrete	Section Modulus	Bending Moment		Ultimate Structural Axial Capacity	Effective Prestress	Concrete Grade
				7.1mm	9.0mm			Cracking	Ultimate			
mm	mm	m	kg/m	no.	no.	mm²	x1000 mm³	kNm	kNm	ton	N/mm²	N/mm²
350	80	6-12	176	9	-	67,858	3,950	41.6	62.7	266	4.9	C65/80
						67,858	3,950	42.5	62.7	311	4.9	C75/90
						67,858	3,950	43.4	62.7	353	4.9	C85/100
						67,858	3,950	44.3	62.7	394	4.9	C95/110
400	90	6-15	228	12	-	87,650	5,872	61.6	95.6	342	5.5	C65/80
	100		245			94,248	6,044	61.4	94.6	371	4.8	
	90		228			87,650	5,872	62.9	95.6	401	5.5	C75/90
	100		245			94,248	6,044	62.7	94.3	432	4.7	
	90		228			87,650	5,872	64.2	95.6	456	5.5	C85/100
	100		245			94,248	6,044	64.0	94.3	490	4.7	
	90		228			87,650	5,872	65.4	95.6	509	5.0	C95/110
	100		245			94,248	6,044	65.4	94.3	548	4.7	
450	90	6-15	265	-	8	101,788	7,996	78.9	116.5	401	4.7	C65/80
	100		286			109,956	8,292	79.0	115.1	437	4.4	
	105		296			113,804	8,414	79.0	114.4	452	4.2	
	90		265			101,788	7,996	80.5	116.5	467	4.7	C75/90
	100		286			109,956	8,292	80.8	115.1	504	4.3	
	105		296			113,804	8,414	80.8	114.4	522	4.2	
	90		265			101,788	7,996	82.2	116.5	529	4.6	C85/100
	100		286			109,956	8,292	82.6	115.1	572	4.3	
	105		296			113,804	8,414	82.6	114.4	592	4.2	
	90		265			101,788	7,996	83.9	116.5	591	4.6	C95/110
	100		286			109,956	8,292	84.3	115.1	639	4.3	
	105		296			113,804	8,414	84.4	114.4	661	4.2	
500	100	6-15	327	-	10	125,664	10,972	106.5	161.6	494	4.8	C65/80
	110		350			134,774	11,341	106.7	159.9	534	4.5	
	115		362			139,094	11,497	106.6	159.0	553	4.3	
	100		327			125,664	10,972	108.8	161.6	576	4.8	C75/90
	110		350			134,774	11,341	109.0	159.9	618	4.5	
	115		362			139,094	11,497	109.0	159.0	638	4.3	
	100		327			125,664	10,972	111.0	161.6	653	4.8	C85/100
	110		350			134,774	11,341	111.3	159.9	701	4.5	
	115		362			139,094	11,497	111.3	159.0	723	4.3	
	100		327			125,664	10,972	111.2	161.6	730	4.8	C95/110
	110		350			134,774	11,341	113.6	159.9	783	4.5	
	115		362			139,094	11,497	113.6	159.0	808	4.3	
600	110	6-18	440	-	14	169,332	18,302	173.1	273.6	662	5.0	C65/80
	120		470			180,956	18,945	173.5	271.1	713	4.7	
	125		485			186,532	19,228	172.4	269.8	738	4.5	
	110		440			169,332	18,302	176.5	273.6	777	5.0	C75/90
	120		470			180,956	18,945	177.0	271.1	830	4.7	
	125		485			186,532	19,228	175.5	269.8	856	4.5	
	110		440			169,332	18,302	179.8	273.6	880	5.0	C85/100
	120		470			180,956	18,945	180.4	271.1	941	4.7	
	125		485			186,532	19,228	178.7	269.8	970	4.5	
	110		440			169,332	18,302	183.1	273.6	984	5.0	C95/110
	120		470			180,956	18,945	183.9	271.1	1051	4.7	
	125		485			186,532	19,228	184.1	269.8	1084	4.5	

CLASS C (MARINE PILE)

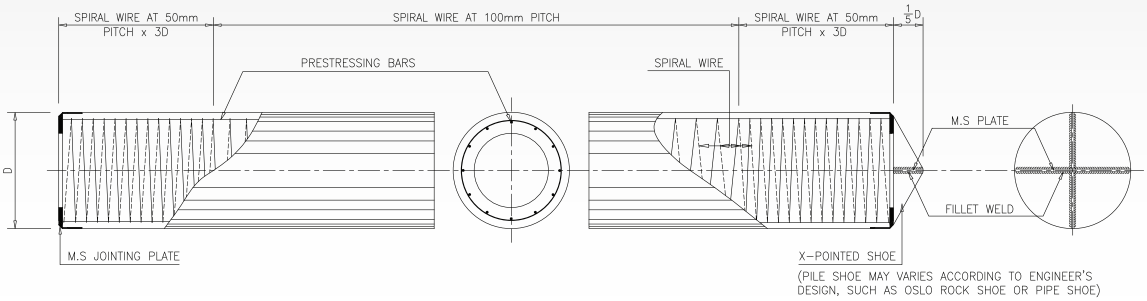
Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Area of Concrete	Section Modulus	Prestressing Bar				Bending Moment		Unfactored Tension Capacity	Ultimate Structural Axial Capacity	Effective Prestress	Concrete Grade
						7.1mm	9.0mm	10.7mm	12.6mm	Cracking	Ultimate				
mm	mm	m	kg/m	mm²	x1000 mm³	no.	no.	no.	no.	kNm	kNm	ton	ton	N/mm²	N/mm²
250	55	6-12	88	33,694	1,443	7	-	-	-	19.6	35.2	26	101	7.5	C65/80
300	60	6-12	118	45,239	2,416	10	-	-	-	33.4	60.8	37	133	8.0	
350	70	6-15	160	61,575	3,826	-	8	-	-	50.5	90.9	48	184	7.6	
400	80	6-15	209	80,425	5,748	-	12	-	-	81.0	155.5	71	231	8.7	
450	80	6-15	242	92,991	7,734	-	12	-	-	98.5	176.9	72	277	7.6	
500	90	6-18	301	115,925	10,670	-	15	-	-	134.1	245.1	90	345	7.6	
600	100	6-30	408	157,080	17,773	-	20	-	-	213.7	394.4	120	469	7.5	
700	110	6-46	530	203,889	27,498	-	-	20	-	348.0	650.5	169	596	8.2	
800	120	6-46	667	256,354	39,966	-	-	24	-	492.3	894.6	204	758	7.8	
900	130	6-54	818	314,473	55,622	-	-	28	-	665.7	1176.7	239	941	7.5	
1000	140	6-54	983	378,248	75,188	-	-	36	-	938.4	1683.9	308	1112	8.0	
				378,248	76,247				34	1079.3	2211.1	372	1048	9.7	
1200	150	6-42	1286	494,801	121,361	-	-	46		1495.2	2600.3	394	1,463	7.8	
				494,801	123,457	-	-	-	46	1789.1	3614.5	504	1,354	10.0	

EURO CODE

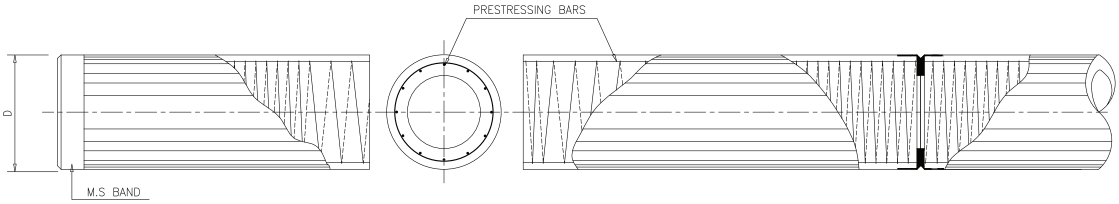
Sectional Details & Bonding Into Pile Cap

ICP PILES SECTIONAL DETAILS

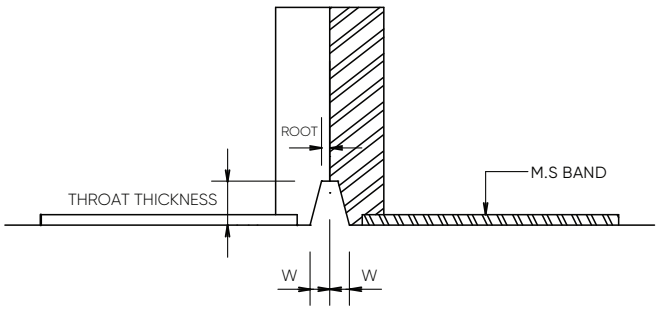
PILE WITH SHOE



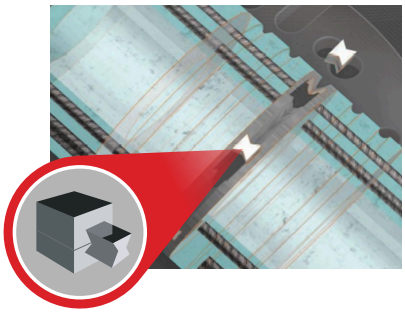
EXTENSION PILE



JOINT WELDING DETAILS



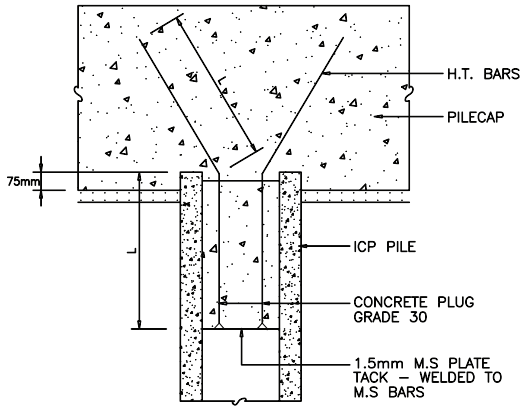
MECHANICAL JOINT



A prefabricated connection system that allows two spun pile segments to be joined without welding, by inserting the engineered steel pins and locking mechanism

BONDING ICP PILES INTO PILE CAP

(Optimized 2–3 × Diameter Pile Spacing per Industry/Engineering Practices)

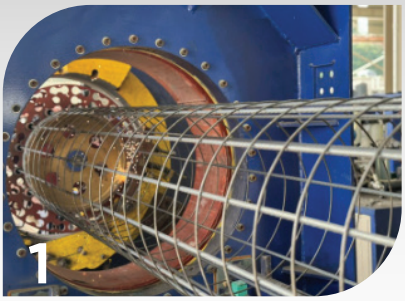


Diameter of Pile	H.T. Bars		
	Quantity	Dia.	L
mm	nos	mm	mm
250	4	12	500
300	4	12	500
350	5	12	550
400	5	12	700
450	5	16	800
500	6	16	900
600	8	16	1,000

As the PC bars are bonded with concrete, ICP Piles may be cut off at any point. The piles need not be stripped down to expose the bars and can be bonded to the pile cap as shown in the above sketch. If the piles are not subjected to tensile loads, the recommended H.T. bars are considered adequate.

MANUFACTURING PROCESS

6 Main Processes



CAGE MAKING

CONCRETE FEEDING

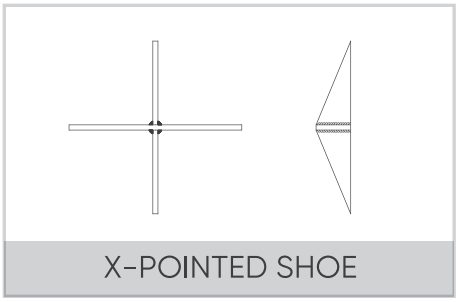
STRESSING

SPINNING

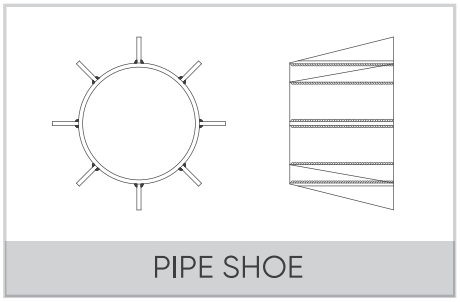
CURING

DEMOULDING

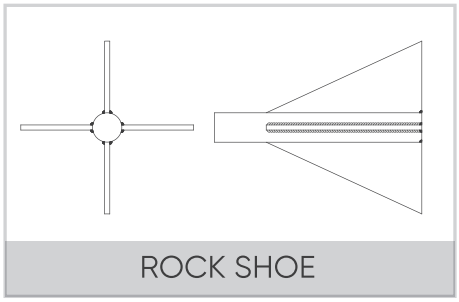
TYPE OF SHOES



X-POINTED SHOE



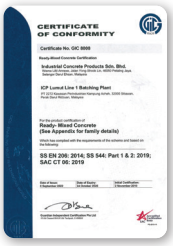
PIPE SHOE



ROCK SHOE

*ICP Piles can be driven open ended without shoe

CERTIFICATIONS



PRODUCT CERTIFICATIONS

GREEN CERTIFICATIONS

ICP PILES

INDUSTRIAL CONCRETE PRODUCTS SDN BHD

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TRUSTED FOUNDATION

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Malaysia.

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81400 Senai, Johor.

NORTHERN OFFICE
Unit 1-13-01, Menara IJM Land, No, 1 Lebuh Tunku Kudin 3, 11700 Gelugor, Penang.

EASTERN OFFICE
Lot PT8022 (Lot 110338)
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ICP Piles Factories
Jawi • Lumut • Bestari Jaya • Kapar • Klang • Kuantan • Nilai • Senai • Ulu Choh

An IJM Company

September 2026