ICP PILES

We Deliver
Trusted Foundation

First Pile Manufacturer Awarded
Green Certification

View Product

An IJM Company

Global reach:

ICP Piles Export Map

Established in 1977, Industrial Concrete Products (ICP Piles) pioneered the commercial manufacturing of High Performance Pretensioned Spun High Strength Concrete Piles (PHC Piles) in Malaysia. With over 45 years of experience, ICP Piles has proudly grown to become one of the largest spun pile manufacturers in Southeast Asia, operating 9 factories nationwide and exporting to Singapore, Brunei, Indonesia, the Philippines, Vietnam, Myanmar, Bangladesh, Sri Lanka, Pakistan, the Maldives, the Middle East, New Zealand, Samoa, the USA, and Canada.

Product Attributes

1. High bending strength with prestressed concrete
2. High concrete strength for hard strata driving
3. Faster production & delivery
4. Durable concrete with high corrosion resistance
5. Eco-friendly with efficient raw material usage
6. Customizable to project needs

Standard

ICP Piles comply with MS 1314: Part 4: 2004 and generally conform to JIS A 5337: 1987. ICP PHC Piles are modified to suit EN 1992-1-1: 2004 - General Rules and Rules for Buildings. The concrete complies with SS EN 206: 2014 – Specification for Concrete.

Material

Aggregates – Coarse and fine aggregates comply with SS EN 206:2014.
Cement – Portland cement complies with SS EN 197:2014.
Prestressing Steel – High frequency induction heat treated bars manufactured to JIS G 3137:1994 and MS 1138:2020.
Spiral Wire – Hard drawn wire complies with BS 4482:2005.

Sizes

ICP Piles' standard single lengths are 6m, 9m and 12m, extendable up to 54m, and prejoined lengths up to 90m, subject to certain limitations. Diameters range from 250mm to 1,200mm. Piles ***can be customised*** to meet specific project requirements.

Lifting Points

For piles up to 12m, lift using steel hooks at both ends. For piles over 12m, use wire ropes at designated lifting points.

Concrete Strength

Minimum concrete cube strength:

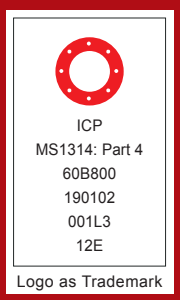
at transfer of prestress		30N/mm²
at 28 days	- C65/80 pile	80N/mm²
	- C75/90 pile	90N/mm²
	- C85/100 pile	100N/mm²

Delivery

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

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



Logo as Trademark

Technical Data

Technical data for standard piles are provided in the tables on the next page. Axial loads shown represent ultimate structural capacities; actual working loads depend on soil conditions.

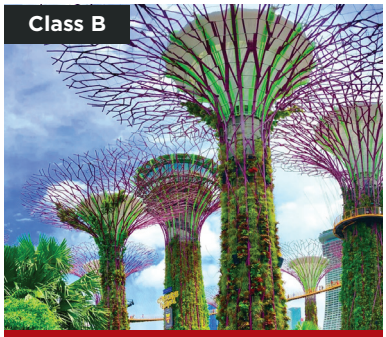
Areas of Application

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

Project Highlights

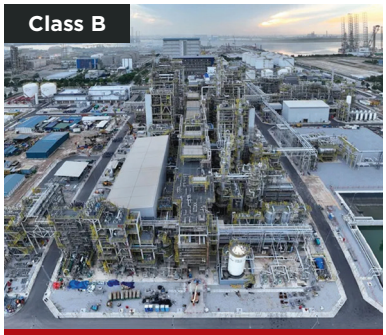
Standard Pile

Class B



Garden by the Bay

Class B



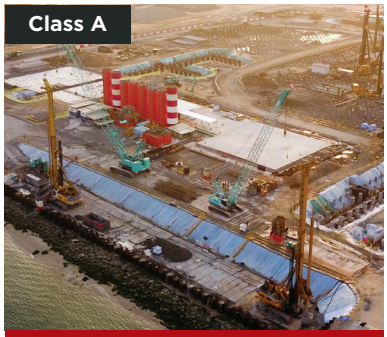
Neste Oil Factory

Class B

HDB, Sengkang West

Compression Pile

Class A



Offshore Marine Center 2

Class A

Tampines Industrial Crescent

Class A

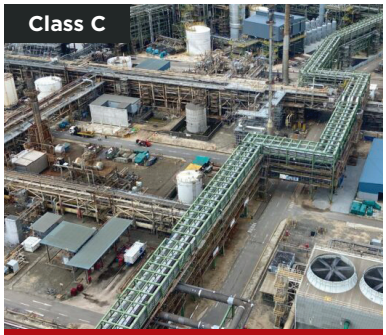
The M Condominium

Marine Pile

Class C

International Cruise Terminal

Class C



New Pitch Gasification Plant

Class C

Mega Shipyard

ICP Piles Specifications

Class B

Standard Pile

(Effective Prestress ≥ 5 N/mm²)

Ideal for general use and commonly applied in standard piling, delivering good performance under both axial and bending/tension loads across various soil conditions, including moderate ground variability, making it suitable for residential, commercial, and industrial structures.

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar			Area of Concrete	Section Modulus	Bending Moment		Unfactored Tension	Ultimate Axial Working Load	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	ton	N/mm²	-
250	55	6-12	88	6	-	-	33,694	1,435	18.0	30.1	22	127	6.5	80
									18.3	30.1	22	150	6.4	90
									18.7	30.1	22	173	6.4	100
300	60	6-12	118	7	-	-	45,239	2,383	27.4	42.6	26	174	5.7	80
									28.0	42.6	26	205	5.6	90
									28.5	42.6	26	235	5.6	100
350	70	6-12	160	9	-	-	61,575	3,778	41.6	63.7	34	238	5.4	80
									42.4	63.7	34	280	5.4	90
									43.3	63.7	33	320	5.3	100
400	80	6-15	209	12	-	-	80,425	5,643	61.6	97.0	45	310	5.5	80
									62.8	97.0	45	365	5.5	90
									64.1	97.0	45	418	5.5	100
450	80	6-15	242	-	8	-	92,991	7,624	78.4	117.9	48	362	5.1	80
									78.4	117.9	48	362	5.1	80
									80.0	117.9	48	426	5.1	90
									81.6	117.9	48	483	5.1	100
500	90	6-15	301	-	10	-	115,925	10,518	106.1	163.4	61	451	5.1	80
									108.2	163.4	60	530	5.1	90
									110.3	163.4	60	603	5.1	100
600	100	6-18	408	-	14	-	157,080	17,546	172.4	276.1	85	609	5.3	80
									175.5	276.1	85	716	5.3	90
									178.7	276.1	85	817	5.3	100
700	110	6-18	530	-	20	-	203,889	27,131	281.2	461.9	121	779	5.9	80
									286.1	461.9	121	918	5.8	90
									290.9	461.9	121	1,057	5.8	100
800	120	6-18	667	-	24	-	256,354	39,455	399.3	635.4	147	986	5.6	80
									406.4	635.4	146	1,160	5.6	90
									413.6	635.4	146	1,333	5.6	100
900	130	6-18	818	-	28	-	314,473	54,942	542.0	835.9	172	1,217	5.4	80
									552.0	835.9	171	1,431	5.3	90
									562.0	835.9	171	1,635	5.3	100
1000	140	6-18	983	-	-	24	378,248	74,056	732.2	1,122.6	208	1,463	5.4	80
									745.8	1,122.6	207	1,721	5.4	90
									759.3	1,122.6	206	1,966	5.4	100
1200	150	6-18	1286	-	-	36	494,801	120,188	1,282.4	2,035.0	311	1,874	6.2	80
									1,304.2	2,035.0	310	2,212	6.2	90
									1,326.0	2,035.0	309	2,549	6.1	100

Formula for Axial Load

Based on EN 1992-1-1, the ultimate structural axial load as below:

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

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

The recommended maximum axial working load shall be determined by applying a safety factor of 2 to the stated ultimate structural axial load.

Class A

Compression Pile

(Effective Prestress ≥ 4 N/mm²)

Primarily designed for high axial compression load-only applications, offering a cost-effective foundation solution recommended for stable ground conditions.

Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar		Area of Concrete	Section Modulus	Bending Moment		Ultimate Axial Working Load	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	-
350	80	6-12	176	9	-	67,858	3,950	41.6	62.7	266	4.9	80
						67,858	3,950	42.5	62.7	311	4.9	90
						67,858	3950	43.4	62.7	353	4.9	100
400	90	6-15	228	12	-	87,650	5,872	61.6	95.6	342	5.5	80
	100		245			94,248	6,044	61.4	94.3	371	4.8	
	90		228			87,650	5,872	62.9	95.6	401	5.5	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	100
	100		245			94,248	6,044	64.0	94.3	490	4.7	
450	90	6-15	265	-	8	101,788	7,996	78.9	116.5	401	4.7	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	90
	90		265			101,788	7,996	80.5	116.5	467	4.7	
	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	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	
500	100	6-15	327	-	10	125,664	10,972	105.6	161.6	494	4.8	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	4.7	90
	110		350			134,774	11,341	109.0	159.9	618	4.4	
	115		362			139,094	11,497	109.0	159.0	638	4.3	
	100		327			125,664	10,972	111.0	161.6	653	4.7	100
	110		350			134,774	11,341	111.3	159.9	701	4.4	
	115		362			139,094	11,497	111.3	159.0	723	4.3	
600	110	6-18	440	-	14	169,332	18,302	173.1	273.6	662	5.0	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	4.9	90
	120		470			180,956	18,945	177.0	271.1	830	4.6	
	125		485			186,532	19,228	175.5	269.8	856	4.5	
	110		440			169,332	18,302	179.8	273.6	880	4.9	100
	120		470			180,956	18,945	180.4	271.1	941	4.6	
	125		485			186,532	19,228	178.7	269.8	970	4.5	

Class C

Marine Pile

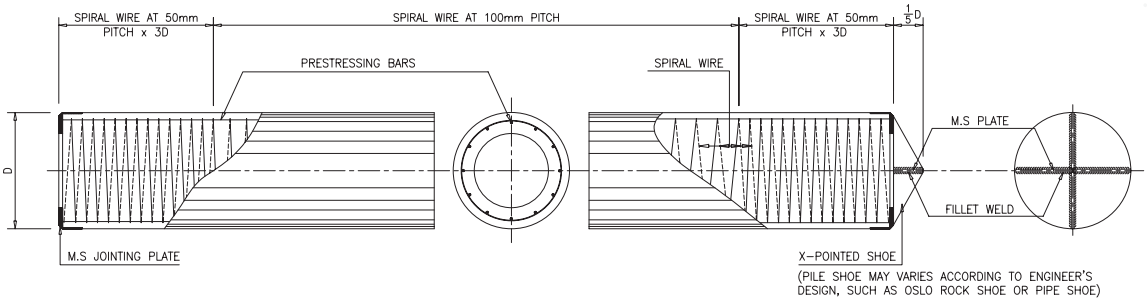
(Effective Prestress ≥ 7 N/mm²)

Engineered for high bending and tension capacity, and can be customized up to 10 N/mm², making it ideal for structures subjected to high bending moments and lateral forces, such as bridges, ports, viaducts, jetties, and offshore foundations.

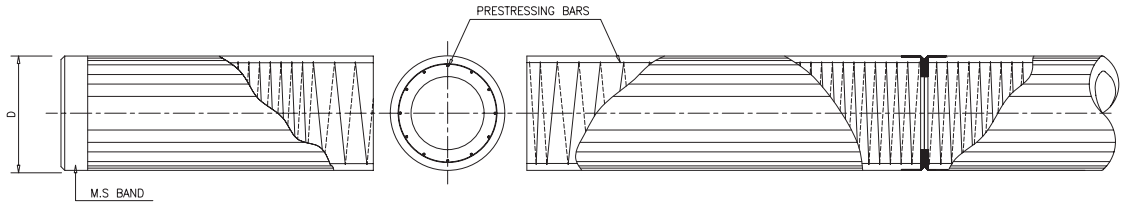
Nominal Diameter	Nominal Thickness	Single Length	Nominal Weight	Prestressing Bar				Area of Concrete	Section Modulus	Bending Moment		Unfactored Tension Load	Ultimate Axial Working Load	Effective Prestress	Concrete Grade
				7.1mm	9.0mm	10.7mm	12.6mm			Cracking	Ultimate				
mm	mm	m	kg/m	no.	no.	no.	no.	mm²	x1000 mm³	kNm	kNm	ton	ton	N/mm²	-
250	55	6-12	88	7	-	-	-	33,694	1,443	19.6	35.2	26	123	7.5	80
300	60	6-12	118	10	-	-	-	45,239	2,416	33.4	60.8	37	163	8.0	
350	70	6-15	160	-	8	-	-	61,575	3,826	50.5	90.9	48	224	7.6	
400	80	6-15	209	-	12	-	-	80,425	5,748	81.0	155.5	71	284	8.7	
450	80	6-15	242	-	12	-	-	92,991	7,734	98.5	176.9	72	339	7.6	
500	90	6-18	301	-	15	-	-	115,925	10,670	134.1	245.1	90	422	7.6	
600	100	6-30	408	-	20	-	-	157,080	17,773	213.7	394.4	120	573	7.5	
700	110	6-46	530	-	-	20	-	203,889	27,498	348.0	650.5	169	731	8.2	
800	120	6-46	667	-	-	24	-	256,354	39,966	492.3	894.6	204	928	7.8	
900	130	6-54	818	-	-	28	-	314,473	55,622	665.7	1,176.7	239	1,150	7.5	
1000	140	6-54	983	-	-	36	-	378,248	75,188	938.4	1,683.9	308	1,363	8.0	
				-	-	-	34	378,248	76,247	1,079.3	2,211.1	372	1,299	9.7	
1200	150	6-42	1,286	-	-	46	-	494,801	121,361	1,495.2	2,600.3	394	1,791	7.8	
				-	-	-	46	494,801	123,457	1,789.1	3,614.5	504	1,682	10.0	

ICP Piles Sectional Details

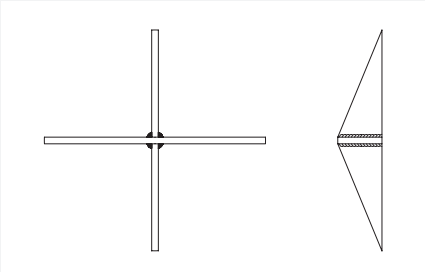
Pile with Shoe



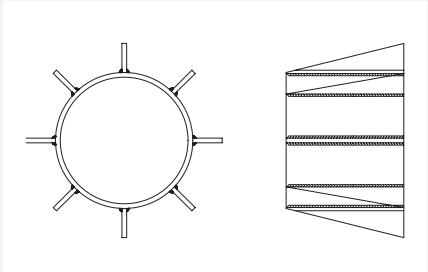
Extension Pile



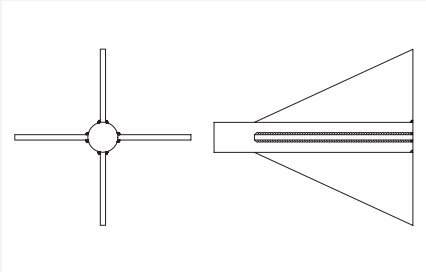
Type of Shoes



X-Pointed Shoe



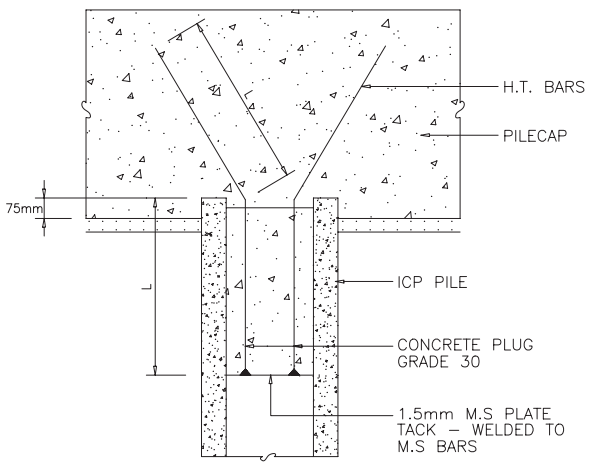
Pipe Shoe



Rock Shoe

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.

Trusted Foundation

Certified Green

SIRIM
ECO-LABEL
ECO SIRIM 033

ISO 9001 : 2015
ISO 45001 : 2018
ISO 14001 : 2015
ISP/IEC 17025 : 2017

MS 1314 : PART 4 : 2004

SS EN 206

Corporate Video

Manufacturing Video

ICP PILES

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>> ICP Piles Factories

Senai • Ulu Choh • Nilai • Klang • Bestari
Jaya • Kapar • Kuantan •
Lumut • Jawi

An IJM Company

August 2025