

REINFORCED CONCRETE SQUARE PILE



SCIB CONCRETE MANUFACTURING SDN BHD

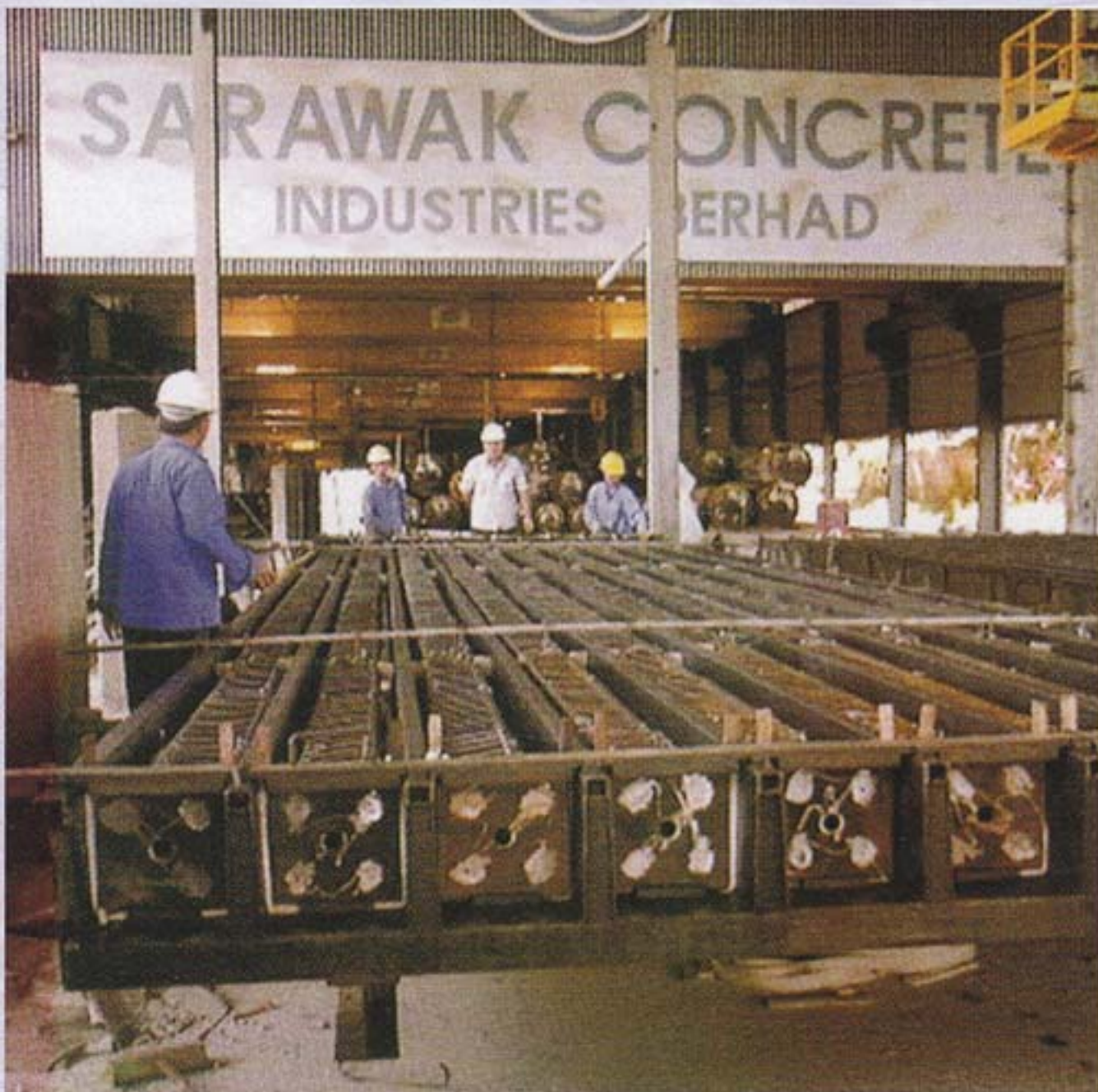
Company No: 554888-U

(A Wholly Owned Subsidiary of Sarawak Concrete Industries Berhad
- A Member of Bursa Malaysia Securities Berhad)



MS ISO 9001 REG. NO AR 1478
MS ISO 9001 : 2000
Quality System's Model for Quality Assurance
in Production, Installation and Servicing

FEATURES



Quality Assured Factory Production

SCM piles are manufactured under factory controlled conditions with management and supervision by highly qualified professionals, thus ensuring the highest product quality and reliability. SCM pile factory carry SIRIM's certification under their quality system registration MS ISO 9001 : 2000.

Wide Range of Pile Size

SCM piles are produced in sizes ranging from 150mm to 400 mm square with various load carrying capacities to suit different design criteria. This will allow the selection of the optimum and economical piling solutions to all foundation problems.

Wide Range of Pile Length

SCM piles come in various easily transportable lengths to be jointed on site to suit requirements. The flexibility in determining total pile length will cut wastage to a minimum.

High Load Carrying Capacities

With the use of high compressive strength concrete of more than 45 MPa, SCM piles allow for heavier driving conditions in hard soil strata and have higher load carrying capacity for more economical design of foundation.

Generally SCM Piles are designed and manufactured according to Malaysia standard MS 1314:2004, special design to BS 8004:1986 and BS 8110 : 1997 can be provided.

1. Materials

Cement	MS 522 :	Part 1 : 1989	Ordinary Portland Cement
Aggregate/Sand	BS 882 :	1992	10mm, 20mm granite, washed river / mining sand
Main Bars	MS 146 :	1988	High Tensile Deformed Bars
	BS 4449:	1997	
Links	BS 4449:	1997	Mild Steel Round Bars
Joint Plate/ Skirt Plate	BS 4360:	1990	Mild Steel Plate Grade 43A

2. Joint

SCM Square Pile comes with mild steel plate joints that are butt welded at site.

3. Pile Shoe

The pile shoe shall be either Flat Mid Steel Plate, Standard X-shoe, or JKR standard pile shoe.

SECTIONAL PROPERTIES OF SCM RC SQUARE PILES

Pile Size mm x mm	Available Length m	Cross Section Area mm ²	Perimeter mm	Section Modulus mm ³ (X10 ⁶)
150 x 150	3,6	22,500	600	0.60
175 x 175	3,6	30,625	700	0.95
200 x 200	3,6	40,000	800	1.44
250 x 250	6,9,12	62,500	1000	2.84
300 x 300	6,9,12	90,000	1200	4.96
350 x 350	6,9,12	122,500	1400	7.92
400 x 400	6,9,12	160,000	1600	11.91

CALCULATION FOR ALLOWABLE AXIAL LOADS

The Recommended Axial Working Load (Safe Working Load) of the pile is calculated in accordance to British Code of Practice CP 114 and BS 8004

$$\text{Safe Working load} = 0.275 f_{cu} \times A_c + 0.55f_y \times A_s$$

f_{cu} = Characteristic Strength of Concrete at 28 Days

A_c = Area of Concrete Pile Section

A_s = Area of Main Reinforcement

f_y = Characteristic Yield Strength of Steel (With 0.55 f_y not exceeding 175N/mm²)

SPECIFICATIONS

AVAILABLE LENGTH OF REINFORCED CONCRETE SQUARE PILE (m)						
Pile Size mm x mm	SCIB Standard	MS 1314: 1993			MS 1314: 2004	
		RCS Class 1	RCS Class 2	Class S	Class J	Class M
150 x 150	3,6	3,6	3,6	-	-	-
175 x 175	3,6	3,6	3,6	-	-	-
200 x 200	3,6	-	-	3,6	3,6	3,6
250 x 250	6,9,12	-	-	3,6,9	3,6,9,12	3,6,9,12
300 x 300	6,9,12	-	-	3,6,9,12	3,6,9,12	3,6,9,12
350 x 350	6,9,12	-	-	3,6,9,12	3,6,9,12	3,6,9,12
400 x 400	6,9,12	-	-	3,6,9,12	3,6,9,12	3,6,9,12

SPECIFICATIONS (M.S. 1314: PART 6: 2004 STANDARD)

RCS CLASS	Pile Size mm x mm	Main Reinforcement nos / Dia.	PILE REINFORCEMENT DETAILS					
			Wire Size (mm)	P1 (mm)	X (mm)	P2 (mm)	Y (mm)	P3 (mm)
1	150 x 150	4T10	4.0	70**	450	70 - 75	450	75
1	175 x 175	4T10	4.0	64**	525	64 - 87	525	87
2	150 x 150	4T10	4.0	50	450	50 - 75	450	75
2	175 x 175	4T10	4.0	45	525	45 - 87	525	87

** Use Double Links at Pile Ends

Pile Size mm x mm	Dimension		Concrete Grade MPa	Concrete Cover mm	* Recommended Axial Working t	Nominal Weight t/m	Recommended Hammer Weight t
	D mm	a mm					
150 x 150	150	154	45	30	25	0.054	0.8 - 1.0
175 x 175	175	178	45	30	35	0.074	0.8 - 1.3

* These recommended axial working loads are only the structural capacity of piles. The actual working capacities are dependant on soil conditions and other considerations but shall not exceed the recommended axial working load.

Pile Size mm x mm	Concrete Cover mm	Base Plate		Anchorage Bar		Centering Bar		MS Tube	Plain Shoe Thickness mm			
		Thickness mm	Width mm	Dia. mm	Length mm	Dia. mm	Length mm					
150 x 150	30	6	145	10	350	50	12	75	16	95	1.6 x 50	4
175 x 175	30	6	170	10	350	50	12	75	16	95	1.6 x 50	4

SPECIFICATIONS (M.S. 1314: PART 3: 2004 STANDARD) FOR CLASS S

Pile Size mm x mm	Main Reinforcement			Lateral Reinforcement		
	nos/Dia.	Wire Size (mm)	P1 (mm)	X (mm)	P2 (mm)	Y (mm)
200 x 200	4T12	4.5	75**	600	75 - 100	600
250 x 250	8T10	4.5	58**	750	58 - 88	750
300 x 300	4T16	6.0	47	900	47 - 142	900
350 x 350	4T20	6.0	42	1050	42 - 127	1050
400 x 400	8T16	6.5	45	1200	45 - 135	1200

** Use Double Links at Pile Ends

Pile Size mm x mm	Dimension		Concrete Grade MPa	Concrete Cover mm	* Recommended Axial Working t	Nominal Weight t/m	Recommended Hammer Weight t
	D mm	a mm					
200 x 200	200	204	45	30	45	0.096	1.1 - 1.8
250 x 250	250	254	45	40	70	0.150	1.3 - 2.1
300 x 300	300	305	45	40	100	0.216	2.0 - 2.5
350 x 350	350	355	45	40	140	0.294	2.3 - 3.5
400 x 400	400	405	45	40	185	0.384	3.1 - 4.5

* These recommended axial working loads are only the structural capacity of piles. The actual working capacities are dependant on soil conditions and other considerations but shall not exceed the recommended axial working load.

Pile Size mm x mm	Concrete Cover mm	Base Plate		Anchorage Bar		Centering Bar		MS Tube	Plain Shoe Thickness mm			
		Thickness mm	Width mm	Dia. mm	Length mm	Dia. mm	Length mm					
200 x 200	30	9	194	12	385	53	16	75	20	95	1.6 x 50	4
250 x 250	40	9	244	16	515	63	16	75	20	95	1.6 x 50	4
300 x 300	40	9	293	16	515	70	20	75	25	95	1.6 x 50	4
350 x 350	40	12	343	20	640	76	20	75	25	95	1.6 x 50	4
400 x 400	40	12	393	25	700	75	20	75	25	95	1.6 x 50	4

JOINT PLATE DETAILS

SPECIFICATIONS

SPECIFICATIONS (M.S. 1314: PART 3: 2004 STANDARD) FOR CLASS J

Pile Size mm x mm	Main Reinforcement nos/Dia.	Lateral Reinforcement					P3 (mm)
		Wire Size (mm)	P1 (mm)	X (mm)	P2 (mm)	Y (mm)	
200 x 200	4T12	4.5	45**	600	45 - 57	600	57
250 x 250	8T10	6.0	62**	750	62 - 79	750	79
300 x 300	8T12	6.5	66**	900	66 - 83	900	83
350 x 350	4T20	6.5	59**	1050	59 - 74	1050	74
400 x 400	4T25	6.5	54**	1200	54 - 67	1200	67

** Use Double Links at Pile Ends

Pile Size mm x mm	Dimension		Concrete Grade MPa	Concrete Cover mm	* Recommended Axial Working t	Nominal Weight t/m	Recommended Hammer Weight t
	D mm	a mm					
200 x 200	200	204	45	30	45	0.096	1.1 - 1.8
250 x 250	250	254	45	40	70	0.150	1.5 - 2.2
300 x 300	300	305	45	40	105	0.216	2.1 - 2.5
350 x 350	350	355	45	40	140	0.294	2.4 - 3.5
400 x 400	400	405	45	40	190	0.384	3.2 - 4.5

* Concrete cover is measured to main Bars

* These recommended axial working loads are only the structural capacity of piles.
The actual working capacities are dependant on soil conditions and other considerations but shall not exceed the recommended axial working load.

Pile Size mm x mm	Concrete Cover mm	Base Plate Thickness		Anchorage Bar Dia. Length		Centering Bar Dia. Length		MS Tube Dia. Length		Collar Thickness & Height mm x mm	Plain Shoe Thickness mm
		H mm	W mm	T mm	L mm	M mm	ME mm	F mm	FI mm		
200 x 200	30	12	194	12	385	16	100	20	120	1.6 x 50	4
250 x 250	40	12	244	16	640	16	100	20	120	1.6 x 50	4
300 x 300	40	15	293	16	640	20	100	25	120	1.6 x 50	4
350 x 350	40	15	343	20	640	25	100	30	120	1.6 x 50	4
400 x 400	40	15	393	25	800	25	100	30	120	1.6 x 50	4

SPECIFICATIONS (M.S. 1314: PART 3: 2004 STANDARD) FOR CLASS M

Pile Size mm x mm	Main Reinforcement nos/Dia.	Lateral Reinforcement					P3 (mm)
		Wire Size (mm)	P1 (mm)	X (mm)	P2 (mm)	Y (mm)	
200 x 200	8T10	4.5	44**	600	44 - 53	600	53
250 x 250	4T16	6.0	62**	750	62 - 79	750	79
300 x 300	4T20	6.5	66**	900	66 - 83	900	83
350 x 350	4T22	6.5	58**	1050	58 - 74	1050	74
400 x 400	4T25	6.5	54**	1200	54 - 67	1200	67

** Use Double Links at Pile Ends

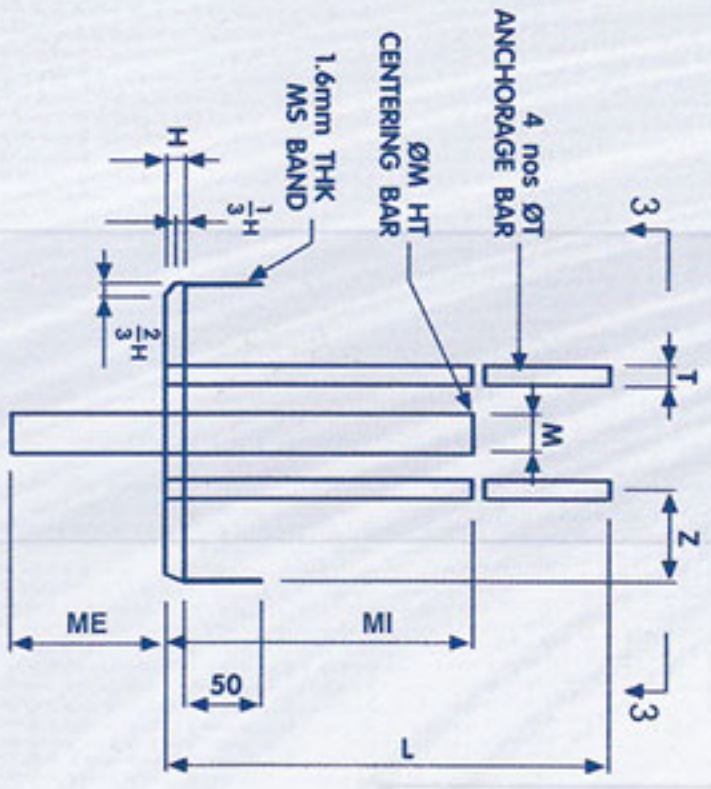
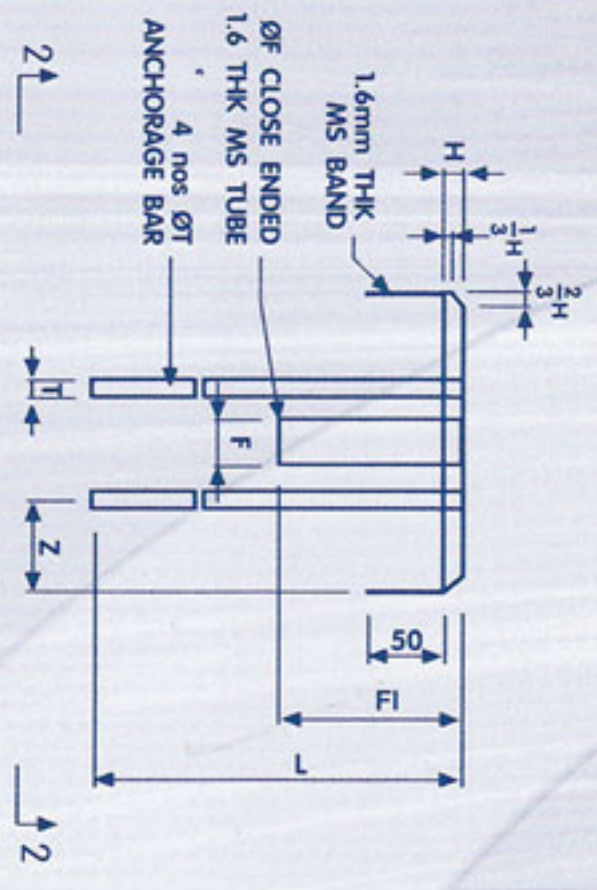
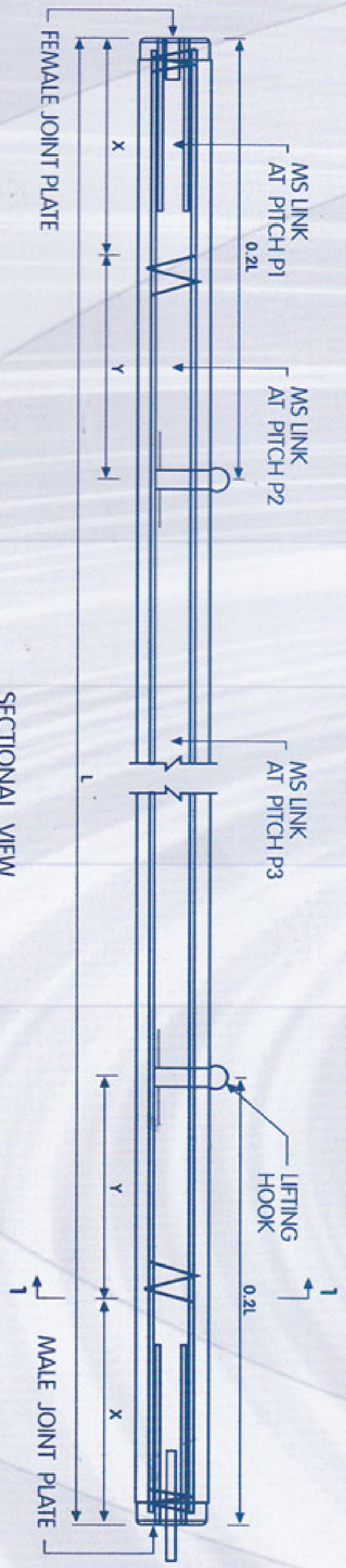
Pile Size mm x mm	Dimension		Concrete Grade MPa	Concrete Cover mm	* Recommended Axial Working t	Nominal Weight t/m	Recommended Hammer Weight t
	D mm	a mm					
200 x 200	200	204	45	30	50	0.096	1.2 - 1.8
250 x 250	250	254	45	40	75	0.150	1.5 - 2.2
300 x 300	300	305	45	40	105	0.216	2.1 - 2.5
350 x 350	350	355	45	40	145	0.294	2.5 - 3.5
400 x 400	400	405	45	40	190	0.384	3.2 - 4.5

* These recommended axial working loads are only the structural capacity of piles.

The actual working capacities are dependant on soil conditions and other considerations but shall not exceed the recommended axial working load.

Pile Size mm x mm	Concrete Cover mm	Base Plate Thickness		Anchorage Bar Dia. Length		Centering Bar Dia. Length		MS Tube Dia. Length		Collar Thickness & Height mm x mm	Plain Shoe Thickness mm
		H mm	W mm	T mm	L mm	M mm	ME mm	F mm	FI mm		
200 x 200	30	12	194	16	320	16	100	20	120	1.6 x 50	4
250 x 250	40	12	244	16	515	16	100	20	120	1.6 x 50	4
300 x 300	40	15	293	20	640	20	100	25	120	1.6 x 50	4
350 x 350	40	15	343	22	705	25	100	30	120	1.6 x 50	4
400 x 400	40	15	393	25	800	25	100	30	120	1.6 x 50	4

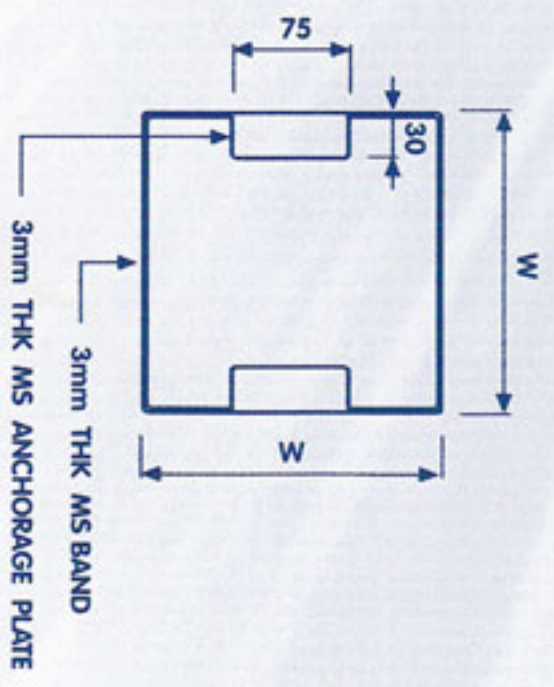
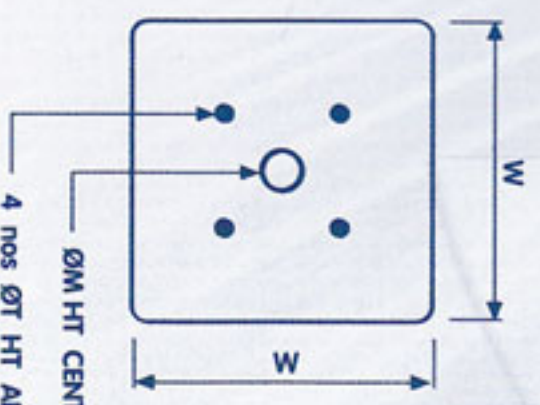
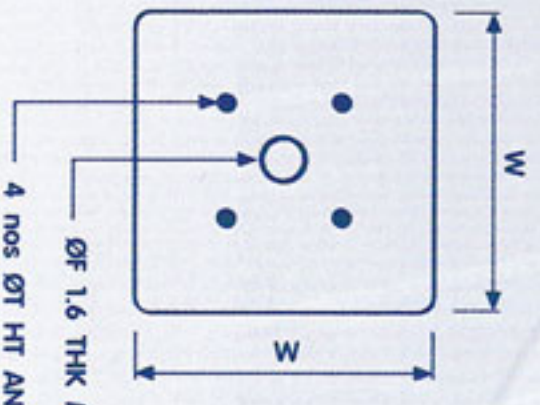
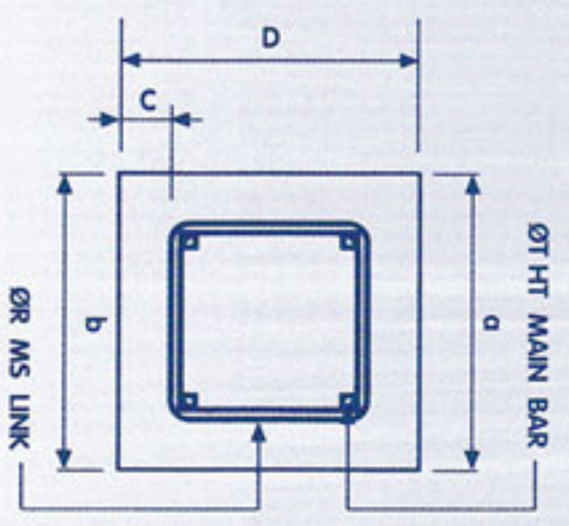
SECTIONAL DETAILS



FEMALE JOINT PLATE

MALE JOINT PLATE

STARTER PLAIN SHOE



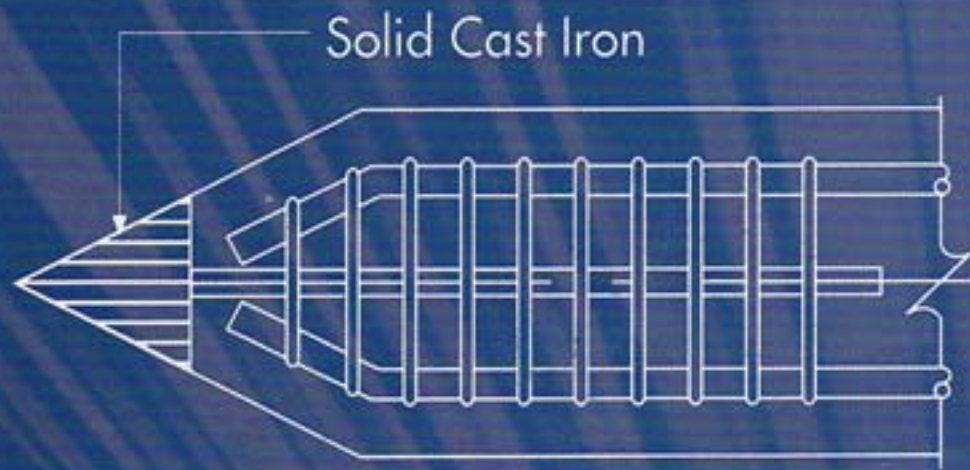
SECTION 1-1

VIEW 2-2

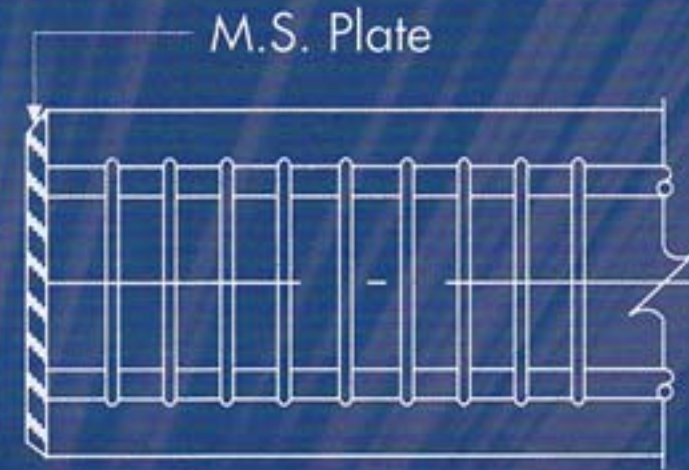
VIEW 3-3

VIEW 4-4

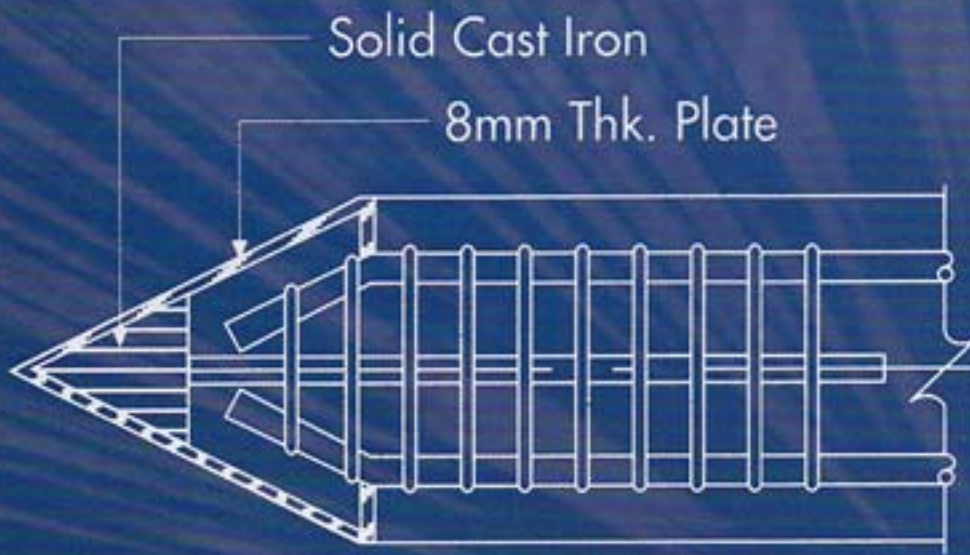
PILE SHOE



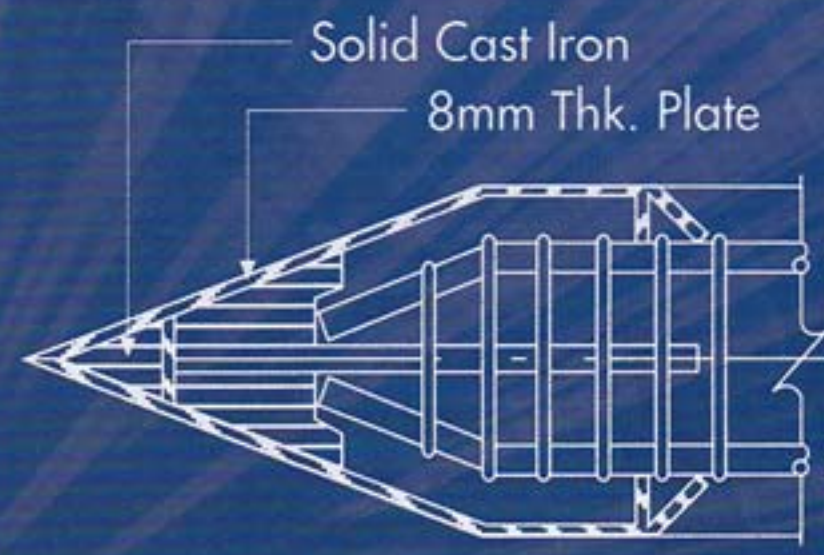
JKR Specification
Pointed Pile Shoe
TYPE 1



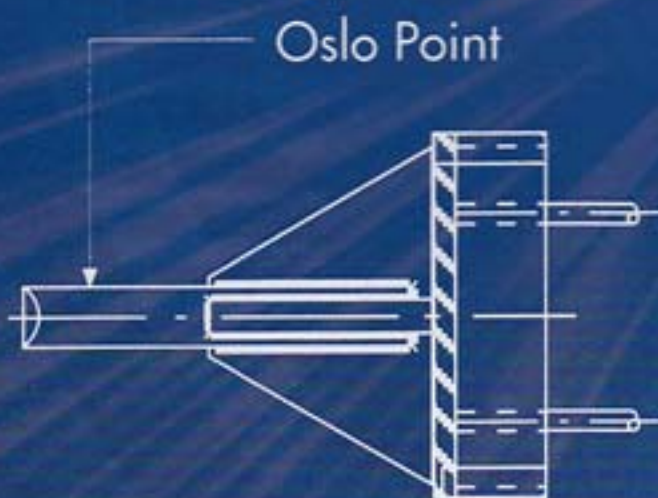
JKR Specification
Flat Pile Shoe
TYPE 2



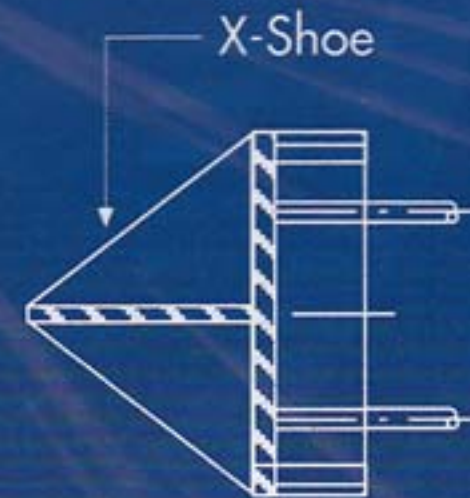
JKR Specification
Pointed MS Plate Pile Shoe
TYPE 3



JKR Specification
Pointed Cast Iron Shoe
TYPE 4



JKR Specification
Oslo Pointed Shoe
TYPE 5



SCIB Specification
Standard X-Shoe

It is our policy to continuously review and improve products and their design. Information in this leaflet is therefore subject to change without notice.



**SARAWAK
CONCRETE
INDUSTRIES
BERHAD**

Lot 1258, Jalan Utama, Pending Industrial Estate,
P.O. Box 1354, 93728 Kuching, Sarawak.
Tel: 082-334485
Fax: 082-334484/082-334406