

PRECAST PRESTRESSED CONCRETE PILES



API - PRODUCT CATALOGUE

API STANDARD P.C PILES

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API PRESTRESSED CONCRETE PILES

Introduction

API Prestressed Concrete (PC) piles are manufactured to ISO 9001 Standard requirement and are designed to meet

- 1) API Customised Design
- 2) Malaysia Standard MS 1314

API produces high performance prestressed concrete (PC) piles with superior inherent bending moment characteristic that are suitable and economical for all foundations of buildings, factories, retaining walls, embankment, ramps and bridges.

In moving forward to an ecofriendly carbon emission footprint, API uses **GREEN cements in our concrete products. Products with blended cements have enhanced workability, long term strength gain and durability in marine conditions, sewerage applications and other aggressive environments.**

General Specifications

STANDARD	- API Customised	: BS 8004	: Foundation
	- Design Standard	: BS 8110	: Structural Use Of Concrete
MATERIAL	- MS Standard	: MS 1314	Prestressed Concrete Piles
	- Cement	: MS 522/MS 1227/MS1389	
	- Aggregates	: MS 29/BS 882	
	- Prestressing Steel	: MS 1138/BS 5896/JIS G 3137	
	- Links	: MS 144/BS 4482	
	- End Plates	: BS EN 10025(Grade S275) / JIS G3101 or equivalent	

Pile Capacity

Allowable Pile Working Load:

$$\text{Where } W = 0.25(f_{cu} - f_p) A_c$$

f_{cu} = Concrete Cube Characteristics Strength at 28 days (60N/mm²)

f_p = Prestressed After Losses

A_c = X-Sectional Area Of Pile

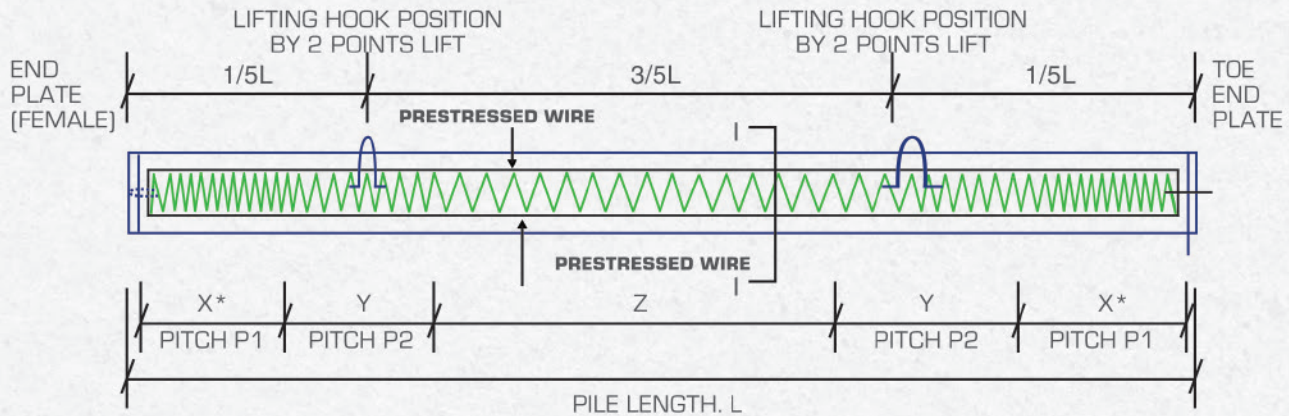
API Prestressed Concrete (PC) Pile Specifications

Pile Ref	Pile Class	Pile Nominal Size (WxW)	Nominal Length (L)	Concrete Characteristic Strength	Main Reinforcement			Minimum Effective Prestress	Cracking Bending Moment, Mc (kNm)	Recommended Max Axial Working Load
					Prestressing wires	Lateral Reinforcement				
		mm ²	m	N/mm ²	nos	mm	mm	N/mm ²		Tonnes
PC125	PCS-1 A	125x125	6,3	60	4	4.5	4	3.5	2.9	22.5
		125x125	6,4,3	60	4	4	4	2.5	2.5	22.9
PC150	PCS-1 A B	150x150	6,3	60	4	5	4	3.5	4.9	32.4
		150x150	9,6,4,3	60	4	4.5	4	2.5	4.4	33.0
		150x150	9,6,4,3	60	4	4	4	2.0	4.1	33.3
PC175	PCS-1 A B	175x175	6,3	60	4	6	4	3.5	7.8	44.1
		175x175	9,6,4,3	60	4	5	4	2.5	7.0	44.9
		175x175	9,6,4,3	60	4	4.5	4	2.0	6.5	45.3
PC200	PCS-2 A B	200x200	9,6,3	60	4	7	4	3.5	11.7	57.7
		200x200	9,6,4,3	60	4	6	4	2.5	10.5	58.7
		200x200	9,6,4,3	60	4	5	4	2.0	9.7	59.2
PC250	PC-X A B	250x250	12,9,6,3	60	4	12.9	6	5.0	26.5	87.7
		250x250	12,9,6,4	60	8	6	5.5	3.5	22.7	90.1
		250x250	12,9,6,4	60	8	4.5	5.5	2.0	18.8	92.5
PC300	PC-X A B	300x300	12,9,6,3	60	10	9	6	5.0	45.2	126.3
		300x300	12,9,6,4	60	8	8	5.5	3.5	38.4	129.7
		300x300	12,9,6,4	60	8	6	5.5	2.0	31.7	133.2
PC350	PC-X A B	350x350	12,9,6,3	60	6	12.9	6	5.0	70.9	171.9
		350x350	12,9,6,4	60	4	12.9	5.5	3.5	60.2	176.6
		350x350	12,9,6,4	60	6	8	5.5	2.0	49.4	181.3
PC400	PC-X A B	400x400	12,9,6,3	60	8	12.9	6	5.0	104.5	224.5
		400x400	12,9,6,4	60	6	12.9	5.5	3.5	88.5	230.6
		400x400	12,9,6,4	60	4	12.9	5.5	2.0	72.5	236.7
PC450	PC-X A B	450x450	12,9,6,3	60	10	12.9	6	5.0	147.0	284.1
		450x450	12,9,6,4	60	8	12.9	5.5	3.5	124.2	291.9
		450x450	12,9,6,4	60	4	12.9	5.5	2.0	101.4	299.6

AXIAL LOAD - The recommended maximum axial working load represents the structural capacity of the pile. The actual working load depending on soil conditions should be determined by load tests. Allowable Axial load is applicable for pile acting as a short strut. Calculation is based on BS 8004; Foundation.

API PRESTRESSED CONCRETE (PC) PILES DETAILS

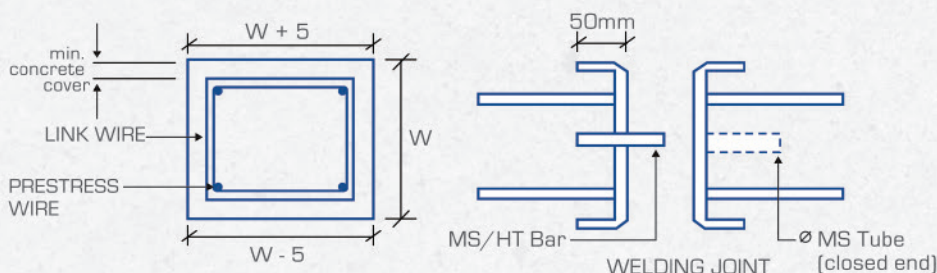
LONGITUDINAL SECTION OF EXTENSION PILE



API PC PILES Class PCS-2, PC-X, A & B : X* is over a distance of 3 times the pile width from each head/toe end. The transition length, Y is between the pile head/toe to the pile body.
API PC PILES Class PCS-1 : X* is over a distance of 5 times the pile width from each head/toe end. The transition length, Y is between the pile head/toe to the pile body.

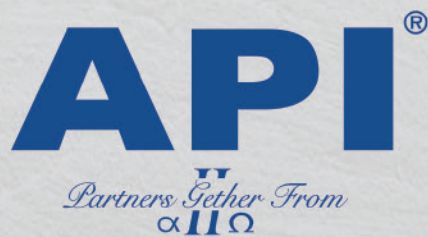
Pile Class	Pile Nominal Size (WxW)	Wire Rod	Stirrups Pitch At			Joint Plate Thickness	Anchorage Bars	
			X	Y	Z		dia	length
	mm ²	mm	mm	mm	mm	mm		
PCS-1 A	125 x 125	4	40	40 - 100	100	6	10	500
	125 x 125	4	40	40 - 100	100	4.5	9	330
PCS-1 A B	150 x 150	4	40	40 - 100	100	8	10	500
	150 x 150	4	40	40 - 100	100	4.5	9	350
	150 x 150	4	40	40 - 100	100	4.5	9	350
PCS-1 A B	175 x 175	4	40	40 - 100	100	8	10	600
	175 x 175	4	40	40 - 100	100	6	9	350
	175 x 175	4	40	40 - 100	100	6	9	350
PCS-2 A B	200 x 200	4	40	40 - 100	100	8	12	700
	200 x 200	4	40	40 - 100	100	6	10	350
	200 x 200	4	40	40 - 100	100	6	10	350
PC-X A B	250 x 250	6	40	40 - 120	120	15	16	840
	250 x 250	5.5	40	40 - 120	120	8	16	520
	250 x 250	5.5	40	40 - 120	120	8	16	520
PC-X A B	300 x 300	6	40	40 - 120	120	15	20	840
	300 x 300	5.5	40	40 - 120	120	9	16	520
	300 x 300	5.5	40	40 - 120	120	9	16	520
PC-X A B	350 x 350	6	40	40 - 120	120	15	20	840
	350 x 350	5.5	40	40 - 120	120	12	20	640
	350 x 350	5.5	40	40 - 120	120	12	20	640
PC-X A B	400 x 400	6	38	38 - 120	120	15	20	840
	400 x 400	5.5	40	40 - 120	120	12	20	640
	400 x 400	5.5	40	40 - 120	120	12	20	640
PC-X A B	450 x 450	6.5	40	40 - 120	120	15	25	840
	450 x 450	5.5	40	40 - 120	120	15	25	800
	450 x 450	5.5	40	40 - 120	120	15	25	800

API PRESTRESSED CONCRETE (PC) PILES JOINT DETAILS



Notes:

1. API PC Piles : Class PCS-1, PCS-2 & PC-X comply to MS 1314: Prestressed Concrete Piles
2. API PC Piles : Class A & B Piles are customised designs complying to BS 8004 Foundations and BS 8110 : Structural use of concrete



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