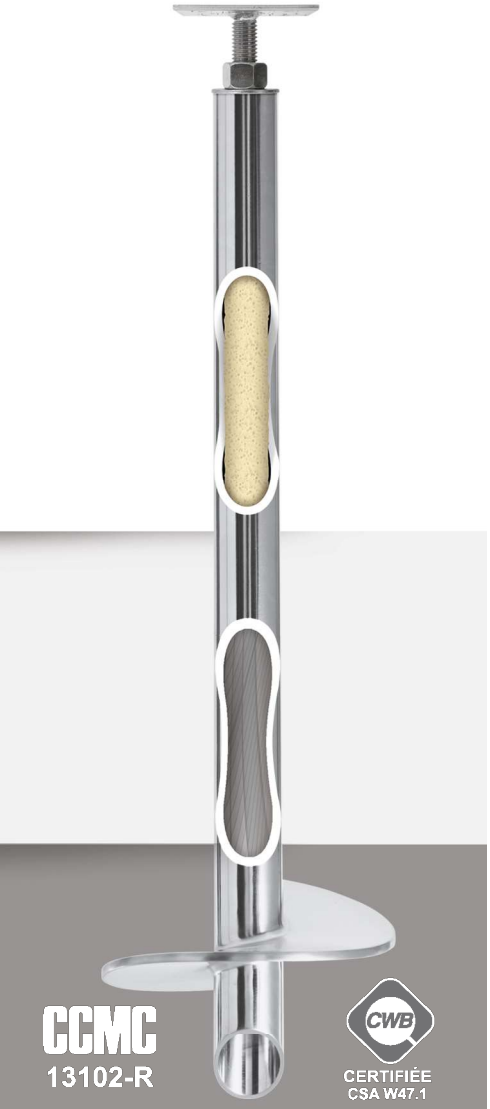
TECHNICAL DATA SHEET
POSTECH PILE P312 (3 1/2”)



CCMC 13102-R

CERTIFIÉE CSA W47.1

NORMATIVE INFORMATION

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MANUFACTURER:
Pieux Vistech - Postech Screw Piles
10260, Bourque boulevard
Sherbrooke QC J1N 0G2
Tel. : 819.843.3003
Toll free: 1.866.277.4389
Fax. : 819.868.0793
postech-foundations.com

PRODUCT CHARACTERISTICS	
Physical and Chemical properties	
STEEL GRADE	Conform to CAN/CSA G40.21-350W and/or ASTM A500 class C
ARC WELDING	Conform to CSA W59-18
HOT DIP GALVANIZATION	Conform to ASTM-A123M
THERMAL INSULATION	Unique polyurethane foam
Standard characteristics	
TUBING DIAMETER	89 mm (3 1/2 in)
BLADE DIAMETER	From 255 to 455 mm (10 to 18 in)
TUBING LENGTH	Standard of 2.1 m and 3 m (7’ and 10’)
TUBING THICKNESS	5.5 mm (0.216)
BLADE THICKNESS	9.5 mm (3/8 in) for diameter from 255 to 355 mm (10 to 14 in) 12.7 mm (1/2 in) for diameter from 405 to 455 mm (16 to 18 in)
ADAPTER HEADS	Various forms as needed according to the project specifications
EXTENSIONS	Available according to project specifications

ALLOWABLE MECHANICAL RESISTANCE (SLS)	
MAXIMUM COMPRESSIVE AND TENSILE OF TUBING	270 kN[(1)] (60 750 lb)
BENDING MOMENT OF TUBING	7.9 kN.m (5830 lb. ft)
INSTALLATION TORQUE - MAXIMUM APPLICABLE	13 695 N.m (10 100 lb. ft)

SLS = Service Limit State

(1) The maximum support value is applicable to steel tube only. The resistance is conditional on the composition of the on-site soil (granular and / or cohesive) and that the pile must be supported laterally. In all cases, the mechanical capacity of the steel tube must be certified by an authorized engineer. (Not applicable in the presence of liquefiable or loose soils, water, air, peat bogs, etc.)

DESIGN INFORMATION

In all cases, please refer to the CCMC 13102-R Assessment Report. All applicable loads must be validated by an engineer licensed to practice under the appropriate provincial or territorial legislation.

BEARING CAPACITY

Postech products are designed to bear compressive and tension loads through the blade at the bottom of the shaft. The design of the shaft and the size of the blade depend on the load and on the bearing capacity of the soil. The monitoring of the applied torque on-site allows for the confirmation of the allowable bearing capacity (SLS) of the soil. All capacities listed on this data sheet must be applied at the pile head less than 0.3 m (1 ft) above ground.

THERMAL INSULATION

Postech products are insulated by a process of injecting polyurethane foam in the piles shaft. The revolutionary insulation system ensures that the inside of the pile is maintained at a temperature that will prevent ice or frost build-up at the base of the pile; providing optimal protection against ground motion using our planet’s heat.

SCREW PILE ADVANTAGES

- Product and installation is supplied, you only need to mark the spot!
- Can be installed in all climates, weather or ground conditions;
- No excavation usually required, minimal impact to your property;
- No waiting time, you can build as soon as the installation is ready;
- Reusable and recyclable, environmentally friendly;
- Can be installed under an existing structure;
- The most reliable & economical solution available.

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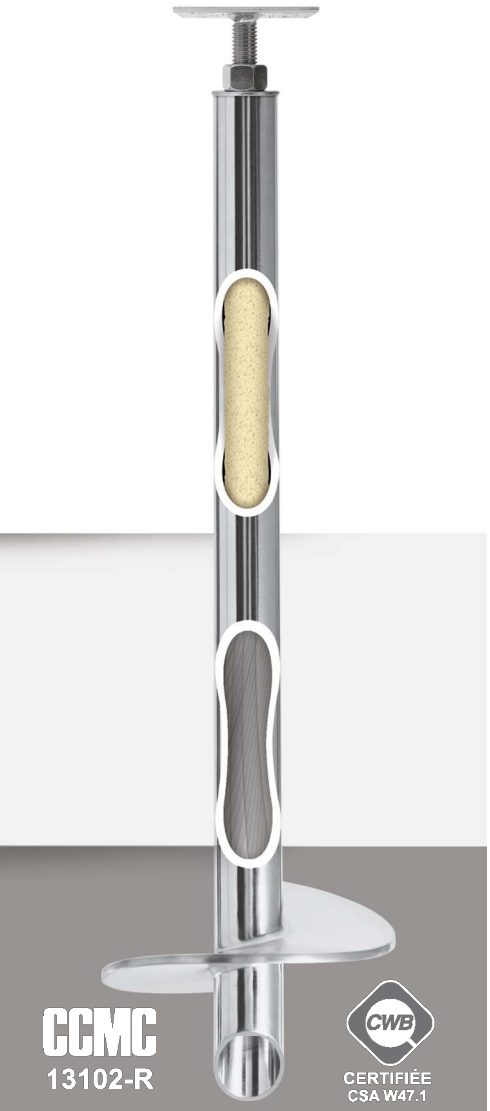

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CWB CERTIFIÉE CSA W47.1

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COHESIONLESS SOILS (SILT, SAND OR GRAVEL)

ALLOWABLE VERTICAL LOADS (SLS) DEPENDING ON APPLIED TORQUES

APPLIED TORQUES (LB-FT)	ALLOWABLE LOADS			
	COMPRESSIVE		TENSILE	
	(kN)	(Lb)	(kN)	(Lb)
1 000	29	6 525	11	2 475
1 250	34	7 650	14	3 150
1 500	39	8 775	18	4 050
1 750	44	9 900	21	4 725
2 000	49	11 025	25	5 625
2 250	53	11 925	31	6 975
2 500	58	13 050	31	6 975
2 750	63	14 175	35	7 875
3 000	68	15 300	40	9 000
3 250	73	16 425	44	9 900
3 500	78	17 550	48	10 800
3 750	82	18 450	50	11 250
4 000	87	19 575	52	11 700
4 250	92	20 700	54	12 150
4 500	97	21 825	56	12 600
4 750	102	22 950	58	13 050
5 000	107	24 075	60	13 500
5 250	112	25 200	62	13 950
5 500	116	26 100	64	14 400
5 750	121	27 225	66	14 850
6 000	126	28 350	68	15 300

ALLOWABLE LATERAL LOADS (SLS) DEPENDING ON SOIL DENSITIES

SOIL DENSITIES (kN / m^3)	P312 ALLOWABLE LATERAL LOADS (2)	
	(kN)	(Lb)
18	5.0	1 125
20	5.6	1 260
22	6.2	1 395

SLS = Service Limit State

(2) Lateral loads are applicable at the pile head, less than 0.3 m (1 ft) above ground, and the pile must be supported laterally by the ground. However, lateral loads do not apply in the presence of liquefiable or loose soils, water, air and peatlands. The lateral capacity of a pile must always be certified by an engineer licensed to practice under the appropriate provincial or territorial legislation.

Technical Notes :

- For cohesionless soils, the safety factor varies from 2.0 to 3.0 in compressive loads and from 2.0 to 2.4 in tensile loads.
- The safety factor for the lateral loads varies from 2.0 to 6.4, for cohesionless and cohesive soils.
- If there are any boulders (> 200 mm in diameter) in the granular matrix, the above mentioned capacities will be overstated. In this case, the allowable loads will be established on-site using a confirmatory test.

TECHNICAL DATA SHEET
POSTECH PILE P312 (3 1/2")

ALLOWABLE LOAD VALUES
OF POSTECH SCREW PILES

The geotechnical calculations for Postech's screw piles were carried out in accordance with the requirements of sub-section 4.2.4 of National Building Code (NBC). We used the design methods set out in Chapters 19 and 20 of the Canadian Foundation Engineering Manual (CFEM). These calcuations are based on the physical and mechanical properties of the on-site at the blade depth and along the steel tubing.

ALLOWABLE LOADS (SLS) – COHESIVE SOILS (CLAY)

Undrained shear strengths (kPa)	Allowable bearing capacities of soils (kPa)	ALLOWABLE LOADS (kN)									
		Blade 255 mm Ø (10" Ø)		Blade 300 mm Ø (12" Ø)		Blade 355 mm Ø (14" Ø)		Blade 405 mm Ø (16" Ø)		Blade 455 mm Ø (18" Ø)	
C=compressive, T=tensile		C	T	C	T	C	T	C	T	C	T
30	50	8	6	11	7	15	10	20	12	25	15
44	75	11	8	16	11	22	14	29	18	36	22
58	100	15	11	21	14	29	19	38	24	48	29
73	125	19	14	26	18	37	23	48	30		36
88	150	23	17	32	21	44	28		36		
102	175	27	19	37	25	51	33				
117	200	30	22	42	28		38				
145	250	38	27		35						
≥175	≥300	46	33								

ALLOWABLE LOADS (SLS) – COHESIONLESS SOILS (SILT, SAND OR GRAVEL)

Compaction indexes N	Allowable bearing capacities of soils (kPa)*	ALLOWABLE LOADS (kN)									
		Blade 255 mm Ø (10" Ø)		Blade 300 mm Ø (12" Ø)		Blade 355 mm Ø (14" Ø)		Blade 405 mm Ø (16' Ø)		Blade 455 mm Ø (18' Ø)	
C=compressive, T=tensile		C	T	C	T	C	T	C	T	C	T
3	50	6	4	8	6	11	8	15	11	19	14
5	75	10	7	14	10	19	14	25	18	31	23
6	100	12	9	16	12	23	17	30	22	37	27
8	125	16	11	22	16	30	22	39	29	50	36
10	150	20	14	27	20	38	28	49	36	62	46
11	175	21	16	30	22	42	30	54	40	68	50
13	200	25	19	35	26	49	38	64	47	81	59
16	250	31	23	43	32	60	44	79	58	99	
20	300	39	29	54	40	76	55	98		124	
≥25	≥ 350	49	36	68	50	95	69	123			

*Note : For a conventional strip footing with a width of less than 1 m.

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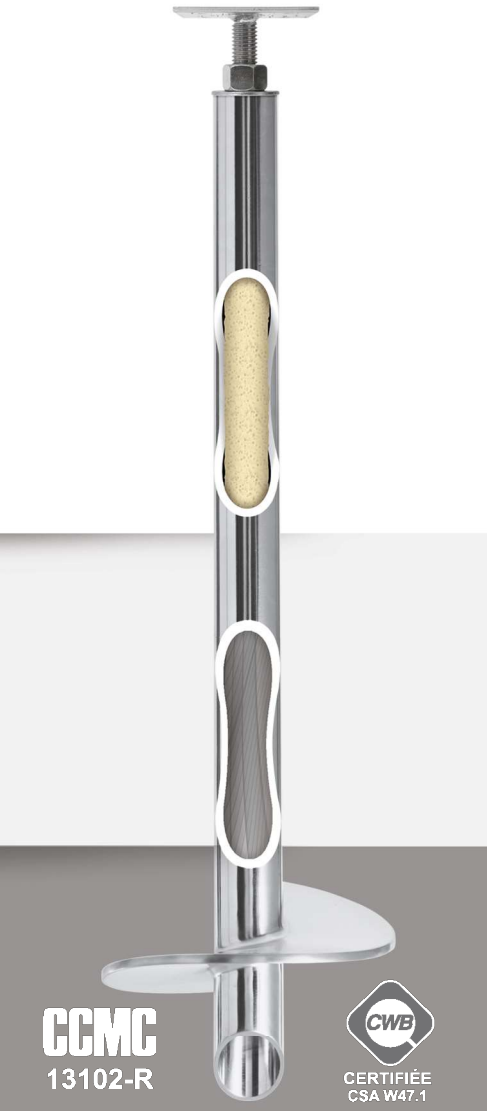

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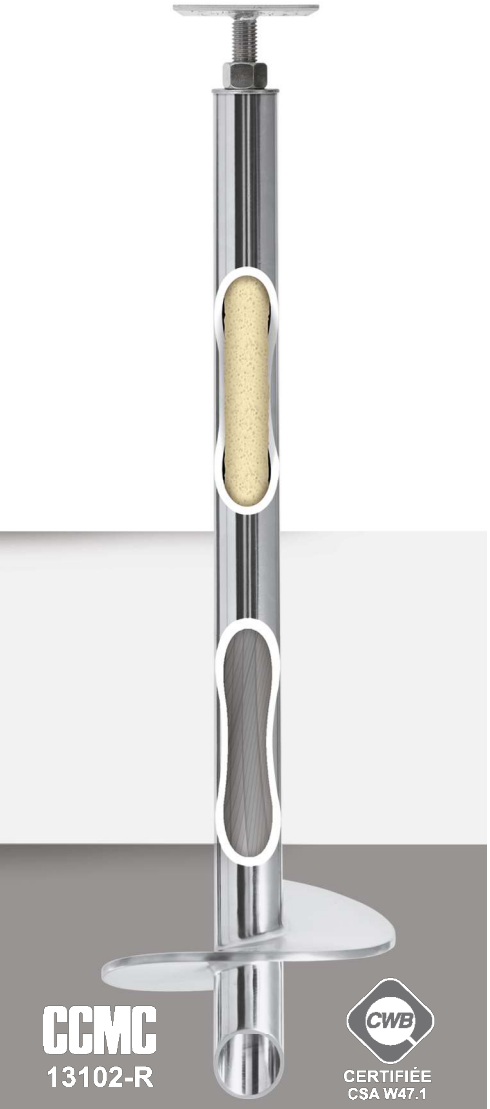

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3 250	36	8 100	27	6 075
3 500	39	8 775	29	6 525
3 750	42	9 450	32	7 200
4 000	44	9 900	34	7 650
4 250	47	10 575	36	8 100
4 500	50	11 250	38	8 550

ALLOWABLE LATERAL LOADS (SLS) DEPENDING ON SOIL DENSITIES

SOIL DENSITY (kN/m^3)	P312 ALLOWABLE LATERAL LOAD (2)	
	(kN)	(Lb)
16	4.5	1 010

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