



CCMC
13102-R



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	60 mm (2 3/8 in)
BLADE DIAMETER	From 200 to 405 mm (8 in and 16 in)
TUBING LENGTH	Standard of 2.1 m and 3 m (7 ft. and 10 ft.)
TUBING THICKNESS	3.9 mm (0.154 in)
BLADE THICKNESS	8 mm (5/16 in) for diameters from 200 to 300 mm (8 to 12 in) 9.5 mm (3/8 in) for diameter of 355 mm (14 in) 12.7 mm (1/2 in) for diameter of 405 mm (16 in)
ADAPTER HEADS	Various forms as needed according to the project specifications
EXTENSIONS	Available according to project specifications

ALLOWABLE MECHANICAL RESISTANCES (SLS)

MAXIMUM COMPRESSIVE AND TENSILE OF TUBING	120 kN ⁽¹⁾ (27 000 lb.)
BENDING MOMENT OF TUBING	2.5 kN.m (1845 lb. ft)
INSTALLATION TORQUE - MAXIMUM APPLICABLE	4650 N.m (3400 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, tension and lateral 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.

COHESIONLESS SOILS (SILT, SAND OR GRAVEL)

ALLOWABLE VERTICAL LOADS (SLS) DEPENDING ON APPLIED TORQUES

APPLIED TORQUES (LB-FT)	ALLOWABLE LOADS (kN)			
	COMPRESSIVE		TENSILE	
	(kN)	(Lb)	(kN)	(Lb)
500	20	4 500	4	900
750	24	5 400	8	1 800
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

ALLOWABLE LATERAL LOADS (SLS) DEPENDING ON SOIL DENSITIES

SOIL DENSITIES (kN / m ³)	P238	
	ALLOWABLE LATERAL LOADS (2)	
	(kN)	(Lb)
18	1.6	360
20	1.7	380
22	1.9	425

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.

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ALLOWABLE LOADS 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 calculations 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 200 mm Ø (8" Ø)		Blade 255 mm Ø (10" Ø)		Blade 300 mm Ø (12" Ø)		Blade 355 mm Ø (14" Ø)		Blade 405 mm Ø (16" Ø)	
C=compressive, T=tensile		C	T	C	T	C	T	C	T	C	T
30	50	5	4	8	5	11	7	15	9	20	12
44	75	7	5	11	8	16	10	22	14	29	17
58	100	9	7	15	10	21	13	29	18	38	23
73	125	12	9	19	13	26	17	37	22		29
88	150	14	10	23	15	32	20		27		
102	175	16	12	27	18	37	23				
117	200	19	14	30	20		27				
145	250	23	17	38	25						
≥175	≥300	28	21								

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

Compaction indexes N	Allowable bearing capacities of soils (kPa)*	ALLOWABLE LOADS (kN)									
		Blade 200 mm Ø (8" Ø)		Blade 255 mm Ø (10" Ø)		Blade 300 mm Ø (12" Ø)		Blade 355 mm Ø (14" Ø)		Blade 405 mm Ø (16" Ø)	
C=compressive, T=tensile		C	T	C	T	C	T	C	T	C	T
3	50	4	3	6	4	8	6	11	8	15	11
5	75	6	4	10	7	14	10	19	14	25	18
6	100	7	5	12	9	16	12	23	17	30	22
8	125	10	7	16	11	22	16	30	22	39	29
10	150	12	9	20	14	27	20	38	28	49	36
11	175	13	10	21	16	30	22	42	30	54	40
13	200	16	11	25	19	35	26	49	36	64	47
16	250	19	14	31	23	43	32	60	44		
20	300	24	18	39	29	54	40	76			
≥25	≥ 350	30	22	49	36	68					

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

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COHESIVE SOILS (CLAY)

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APPLIED TORQUES (LB-FT)	ALLOWABLE LOADS			
	COMPRESSIVE		TENSILE	
	(kN)	(Lb)	(kN)	(Lb)
750	8	1 800	6	1 350
1 000	11	2 475	8	1 800
1 250	14	3 150	10	2 250
1 500	17	3 825	12	2 700
1 750	19	4 275	14	3 150
2 000	22	4 950	16	3 600
2 250	25	5 625	19	4 275
2 500	28	6 300	21	4 725
2 750	31	6 975	23	5 175
3 000	33	7 425	25	5 625
3 250	36	8 100	27	6 075
3 500	39	8 775	29	6 525

ALLOWABLE LATERAL LOADS (SLS) DEPENDING ON SOIL DENSITIES

SOIL DENSITY (kN/m ³)	P238	
	ALLOWABLE LATERAL LOAD ⁽²⁾	
	(kN)	(Lb)
16	1.4	315

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CERTIFIÉE
CSA W47.1

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