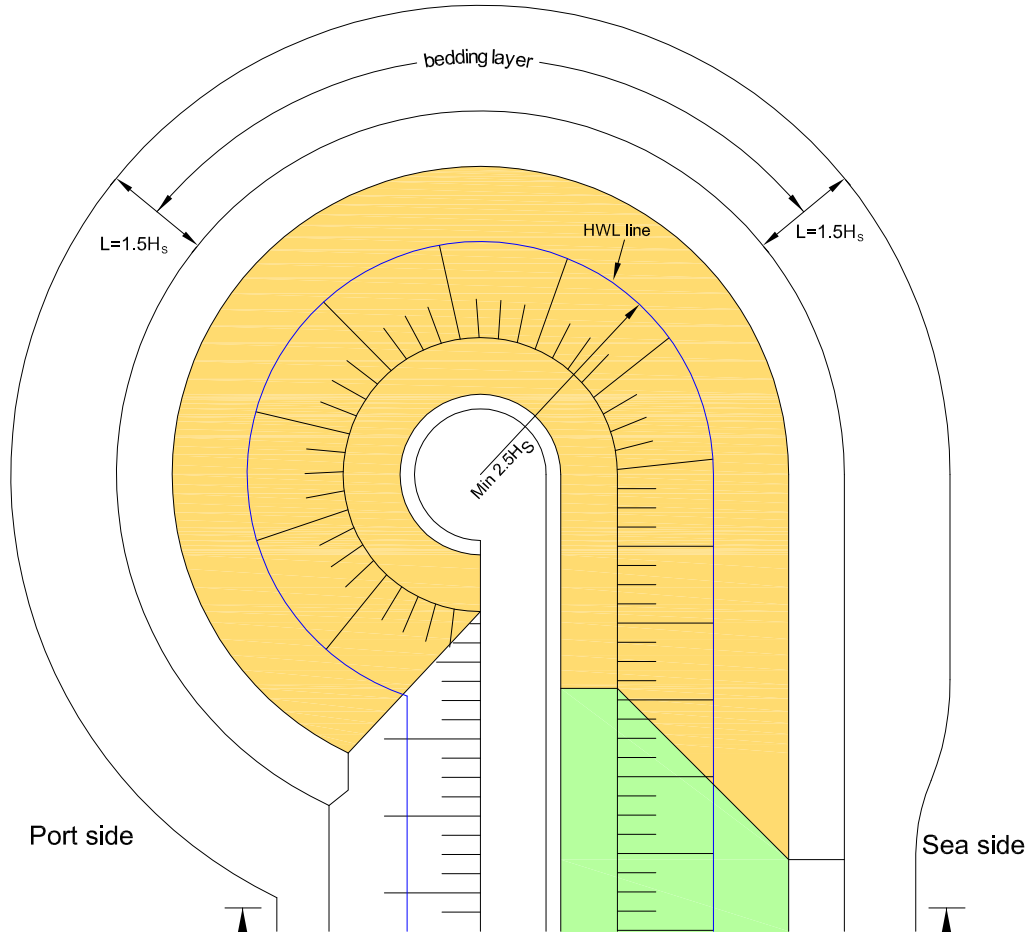


TYPICAL ROUNDHEAD WITH CROWN WALL

plan view



Port side

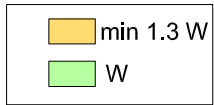
Sea side

A

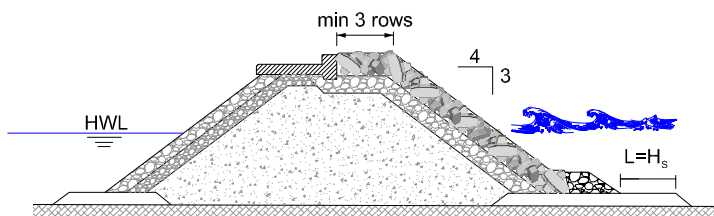
A

Where:

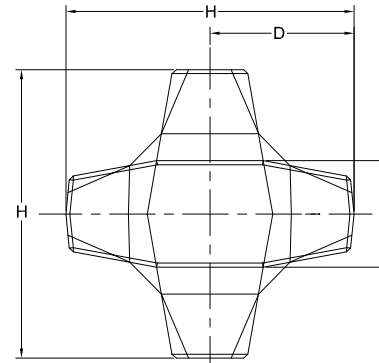
- L = min. bedding layer width
- W = ACCROPODE™ unit weight on trunk section
- H_s = significant wave height
- HWL = highwater level



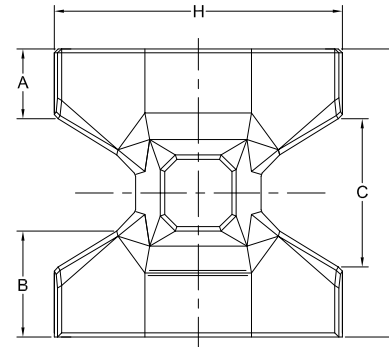
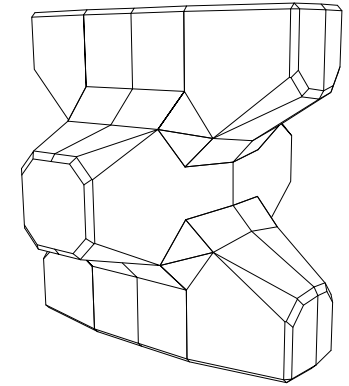
cross section A-A



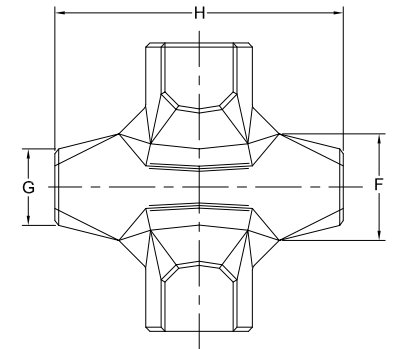
ACCROPODE™ GEOMETRY



top view



front view



side view

$$V = 0.34H^3$$

Where:

- V = ACCROPODE™ unit volume
- H = ACCROPODE™ unit height

H = 1.0
A = 0.243
B = 0.350
C = 0.514
D = 0.500
E = 0.370
F = 0.370
G = 0.264



IMPORTANT NOTE: In order to limit the possible settlements along the armour slope, the maximum number of rows is recommended not to exceed 20

ACCROPODE™ Design Table

Unit volume V (m³)	V = 0.34 H³	0.8	1.0	1.5	2.0	2.5	3.0	4.0	5.0	6.3	9.0	12.0	16.0	18.0	20.0	24.0	28.0
Unit height H (m)	$H = (V/0.34)^{1/3}$	1.33	1.43	1.64	1.81	1.94	2.07	2.27	2.45	2.65	2.98	3.28	3.61	3.75	3.89	4.13	4.35
Armour thickness T (m)	T = 0.9 H	1.20	1.29	1.48	1.62	1.75	1.86	2.05	2.20	2.38	2.68	2.95	3.25	3.38	3.50	3.72	3.92

Armour concrete consumption and coverage	Concrete consumption (m³/m²)	0.608	0.655	0.750	0.825	0.889	0.944	1.039	1.120	1.133	1.277	1.405	1.546	1.608	1.666	1.770	1.864
	N° of units / 100 m²	75.98	65.48	49.97	41.25	35.55	31.48	25.98	22.39	17.99	14.18	11.71	9.67	8.94	8.33	7.38	6.66

Filter stone under layer d _s = 2.65 tons/m³	Wmin (tons)	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.5	2.0	2.4	2.6	2.8	4.0	4.5
	Wmax (tons)	0.3	0.3	0.5	0.7	0.8	1.0	1.3	1.7	2.0	3.0	4.0	4.8	5.2	5.6	8.0	9.0
	Thickness (m)	1.0	1.1	1.2	1.4	1.4	1.5	1.7	1.8	1.9	2.2	2.5	2.6	2.7	2.7	3.1	3.2

Design wave H _s (m) (Hudson's Formulae) S = 1.33	Design K _D value*	Concrete density. d _c (tons/m³)																
	15	2.35	3.23	3.48	3.98	4.38	4.72	5.02	5.52	5.95	6.42	7.24	7.96	8.77	9.12	9.44	10.03	10.56
	Trunk section (mild seabed slope b)	2.40	3.35	3.61	4.13	4.55	4.90	5.21	5.73	6.17	6.67	7.51	8.27	9.10	9.46	9.80	10.41	10.96
	11.5	2.35	2.96	3.18	3.64	4.01	4.32	4.59	5.05	5.44	5.88	6.62	7.29	8.02	8.34	8.64	9.18	9.67
	Roundhead (mild seabed slope b)	2.40	3.07	3.30	3.78	4.16	4.48	4.77	5.25	5.65	6.10	6.87	7.57	8.33	8.66	8.97	9.53	10.03

b = seabed slope (%)

d_c = concrete density (tons/m³)

S = armour slope tan α = 4/3 = 1.33

d₀ = seawater density (tons/m³) = 1.030

This table is also applicable with tan α = 3/2 (S = 1.50)

*For breaking waves and if the seabed slope (b) is greater than 1%, lower K_D values shall apply.

*This proprietary information of CLI is provided for guidance only.
Hence, it is not a substitute for analysis by an experienced registered Engineer.*

Example : Trunk section

d_c = 2.35 t/m³
H_s = 7.70 m
b = 2%
no breaking waves

} V = 12 m³