SEA
Engineering Excellence

CONSTRUCTION

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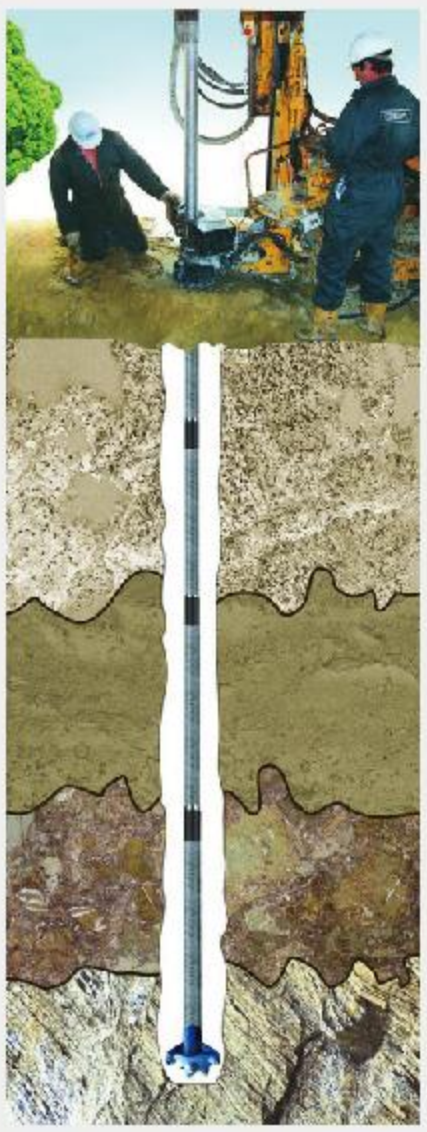
SEA Piling system



Historically it has always been difficult to sink foundation piles into soils containing irregular boulders or hard rock. Problems related to conventional piling in these difficult soil conditions include fracturing of the concrete column , shearing of the column or deflection after striking an unexpected boulder or rock formation. In every case where the column hasn't been successfully driven it must be abandoned and another pile has to be driven to replace the failed pile. It is estimated that the failure rate for conventional piling in hard soil and rocky conditions is around 20% (even higher in some places). Additional materials needed for replacement , hire of equipment and labour time could seriously affect the profitability of a contract or even result in a loss-making situation.

SEA Ltd has developed a total solution for piling in difficult soil and rocky conditions

SEA Piling System uses a sacrificial cutting head , high tensile steel threaded tube and steel coupling connectors. Driven by a conventional drilling rig , grout is pumped through the tubular core to the cutting head then is forced out through a hole behind the cutting face . As the cutting head continues to descend it creates a bored cavity of which the free flowing grout , forced under pressure instantly fills. Once the desired load bearing depth has been reached the drill rig is then free to move on to drill the next pile with the contractor having assurance that the pile is to the correct depth, has no fractures, is straight and without suffering from deflection. The use of SEA's Piling System offers many other advantages over other piling techniques:

- No removal of the drill or auger string required.
- No need for the installation and removal of a drill casing.
- No insertion of an anchor rod or reinforcement cage.
- No need for large amounts of drill waste removal.

Our special process used in the manufacture of the threaded tube greatly improves the material grain structure and tensile strength, therefore allowing more power to be used during installation and achieving greater load bearing properties. This is what makes SEA Piling System better than any other on the market.

Product Description	Units	MP38/24	MP70/60	MP90/80	MP114/99
Nominal outside diam.	mm	38	70	90	114
Nominal inside diam.	mm	25.4	61	79	102
Ultimate load	kN	466	550	790	1223
Yield	KN	422	505	718	1110
Ultimate tensile	N/mm	750	600	605	605
Yield stress 0.2	N/mm	680	550	550	550
Cross section average area	mm	621	916	1306	2015
Weight	kg/m	4.6	6.5	9.48	14.8
Thread	–	Right	Right	Right	Right
Lengths	m	1/3	1/3	1/3	3/6

Yield / Ultimate figures are calculated from data supplied by an independent test house. Standard length is 3m; others available on request.

Design and usage of the products should be in accordance with the appropriate safe practices and applicable codes and regulations.

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SEA Piling and Geothermal Drill Bits

To compliment the hollow threaded bar, SEA offer the following Drill Bits:

SEA Piling Drill Bits

For clays and soft or medium soils, the strong SEA- Cross-Cut drill bit is made from tough cast steel and reaches the desired pile depth with ease. Grout / flushing holes situated behind the cutting blade deliver optimum flow to create a well-formed high load bearing pile. The drill bit is sacrificial and will remain at the bottom of the pile acting as a strong anchor for the tubular steel core.

Bit Size mm	Bar Size mm
120	38
175	70
200	90
300	114

For hard rock, irregular boulders and landfill conditions, the SEA- Domed Button drill bit will provide unrivalled performance. This unique bit is made from a tough steel casting and incorporates high-grade tungsten buttons inset into conical pillars to maximise rock break-up and dispersal. Like the Cross-Cut, the Domed-Button bit is sacrificial and will provide a solid anchor at the bottom of the pile.

Bit Size mm	Bar Size mm
120	38
175	70
200	90
300	114

SEA Geothermal Drill Bits

SEA- Ring Bit / Casing bit : With hard durable tungsten cutting face the SEA Ring Bit makes light work of reaching required depths for installation of geothermal casings. Available in a wide range of thread types to suit all rig applications.

Bit Size mm	Thread
165	Klemm thread as standard, others made to order
152	

SEA- Drag Bit : This geothermal drag bit with its tungsten edged blades and ballistic tungsten nose is suitable for most ground conditions. Drilling to depths of 100m can be achieved within 3 to 6 hours on average in the following ground types: Sand ; Shale ; Clay ; Mud Stone ; Sandstone ; Lime Stone.

Bit Size mm	Thread
125	2 3/8 API
	3 1/2 API

SEA- DX Geothermal Bit : Developed to allow drilling to depths of normally 30m. A copper loop is passed down the centre of the drill string to the bit. The large hole at the front of the bit allows the loop to be fed passed the bit and the drill string withdrawn leaving the loop in place and grout is pumped down the drill string during extraction. Drilling to depth in most soil types will take approx 20 to 40 minutes and complete installation at 1 hour per hole.

Bit Size mm	Thread
100	76.1 as standard. Klemm conical percussion fit.

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