

Aquacaster - Marine Vibroflot



Vibroflot Details

The Aquacaster is Pennine's purpose built vibroflot for marine applications. It is based on the proven HD130 and HD150 vibroflots modified with a stone delivery tube attached down the length of the flot and fitted with a large capacity hopper at the top. This enables bottom feed stone column construction to be implemented directly into the seabed.

Construction Sequence

The Aquacaster is suspended from a barge mounted crane before the hopper is charged with stone and lowered to penetrate the seabed.

Upon reaching design depth stone is released from the hopper into the attached stone pipe, exiting from the tip of the vibroflot at the bottom of the bore hole. The Aquacaster is then slowly withdrawn and re-inserted in gradual 'lifts' as charges of stone are continually deposited and a dense stone column is compacted within the seabed. The hopper has a stone capacity of 12m³, allowing multiple columns to be installed before refilling is required.

By inserting stone columns the dissipation of excess pore water pressure created under

loading is accelerated and the ground is densified. As a result the risk of liquefaction is significantly reduced in the event of earthquakes.

Specifications

Aquacaster Model	HD130	HD150
Diameter	310 mm	310 mm
Centrifugal force	140 kN	200 kN
(maximum)	202 kN	288 kN
Frequency	50 Hz	50 Hz
(maximum)	60 Hz	60 Hz
Power	98 kW	130 kW
(maximum)	117 kW	156 kW
Amplitude at tip	8 mm	11 mm
Weight of vibroflot (for 8.5m treatment)	1,850 kg	2,550 kg
Weight of extension tubes (per 5m)	850 kg	850 kg
Hydraulic flow	180 lpm	240 lpm
(maximum)	216 lpm	280 lpm
Hydraulic pressure	325 bar	325 bar