



Sustainable Technology

ROCK/GROUND ANCHORS & SBMA

Ground Anchors, SBMA and Rock Anchors

Ground Anchors, as distinct from Rock Anchors, are anchors where the load carrying bond length of the anchor is installed into soil or soft rock and in which anchor bond stresses are significantly lower than those applicable to hard rock. In consequence anchor load capacities of conventional ground anchors are relatively modest with an upper limit of around 50 tonnes in sands and gravels and considerably less in fine grained soils.



Austress Menard has been heavily involved with the technology that has addressed this problem and developed the system of Single Bore Multiple Anchors (SBMA) and which has enabled ground anchor working load capacities as high as 200 tonnes.

SBMA provide the means to develop high load capacities in ground anchors bonded into soils and weak rock. This system involves installing multiple components/ anchor units, each with an individual short bond length into a single anchor bore hole. The short bond lengths of the individual units are staged sequentially over the total length of the anchor bond, each loading a different section of soil or weak rock.



The SBMA system recognises the relative efficiency of short bond lengths in generating anchor capacity, in contrast to a single long bond length that is subject to progressive debonding at the proximal end of the bond length.



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Load application is to the whole anchor simultaneously, by means of multiple jacks connected through a manifold to provide a uniform pressure to each jack. This accommodates the differing free lengths of the component anchor units and ensures that equal loading is applied to each individual unit of the anchor.

Very high capacity anchors (several hundred tones) remain the preserve of Rock Anchors due the high bond stresses attainable in rock. Austress Menard has a long history of installing high capacity, multi-strand anchors for such applications as dam stability and capacity enhancement and counteracting wind induced tensile forces at the bases of high rise structures.