Diaphragm walls
Noise and vibration-reduced establishment of construction pits

Aarsleff has many years of experience with installation of retaining walls and is among the leading companies within development of noise and vibration-reduced methods. In addition to solutions with vibration, drilling and pressing, our expertise comprises establishment of diaphragm walls. One of the great advantages of diaphragm walls is the method’s very low level of noise and vibration, which means that it can be carried out in most soil types.

Method
Diaphragm walls are established by excavating a 60 to 120-centimetre-wide trench down to x-metre depth. In principle, there is no limit to the depth – in several places in Denmark, excavation has been carried out down to a depth of 45 metres.

To protect the excavation against collapse, stabilisation is carried out on an ongoing basis by means of a mixture of water, bentonite and cement. The final stabilisation of the construction pit is made with sheet piles or prefab elements which are lowered down into the mixture of water, bentonite and cement. Depending on the final excavation depth, the sheet piles or elements are stabilised with soil anchors.

The width of the trench is often determined by two parameters: The required depth and the width of the static stabilising element which is to be installed in the trench.

The work is carried out with a crane, a large grab and a mixer plant for water, bentonite and cement.

The work is carried out in accordance with DS/EN 1538.
Reduction of groundwater inflow

Diaphragm walls can be used with advantage for construction pits in urban areas with strict requirements for noise and vibration levels. Another advantage of the diaphragm walls is the impermeability obtained after curing. When combining the impermeability with a trench of a bigger depth than statically required, a cut-off effect on the groundwater inflow is obtained. This means that you are able to reduce the groundwater lowering – and the project costs – considerably. Aarsleff can also assist with technical consultancy and design.

Our extensive fleet ranges from mini piling rigs to large specialised machines and covers fully hydraulic piling and drilling rigs as well as cranes and vibrators.