

Dredging Technology – Underwater Excavation and Construction

The presence of water is usually considered a nuisance in construction, particularly when excavating removing water is common practice. In some cases however, water can be a very useful tool that may simplify things greatly.

With the “flooded excavation principle”, the construction site is flooded after the retaining walls have been installed (e.g. sheet pile). When the excavation is in layered soils facing artesian pressure and confining layers, the weight of the water compensates for the topsoil being removed and prevents failure of the base of the excavation. Particularly when it is difficult to install pump systems, or when reducing the artesian pressure is impossible or undesirable due to other factors, the flooded excavation may be the easiest option.



Rather than with earthmoving equipment, the actual digging is done with a submersible Damen pump that is suspended from an excavator or crane. By installing jetting nozzles on the submersible pump the soil is agitated, creating a slurry that can be pumped away, thereby digging out the soil. When the intended depth is reached, underwater concrete is poured to create a watertight base that will create a caisson in combination with the

retaining walls already installed.

In the pictures you see a perfect example of such a project being conducted in the port area of Copenhagen (Denmark). In order to install a three story parking basement the contractor is excavating down to a level often meters below sea level. The jetting pump used to power the nozzles is a purpose built BA-C200S8 jetting pump.



BA-C200S8 – duty point 1000 m³/h @ 10 bar

This high-powered jetting pump will run at a staggering efficiency rate of 82% in the duty point and is powered by the cleanest Stage IV final diesel engine in its class: The Volvo Penta TAD1375VE with an AdBlue after treatment system. The unit is supplied in the latest BBA super silent canopy and is fitted with all bells and whistles such as remote control, integrated flood lights, certified lifting points and LCD CAN-BUS control panel.

Although a niche market, this dredging technology offers many benefits in specific situations. As the method requires a minimum amount of earth moving equipment the excavation can be done quickly and safely without any major disruptions to day-to-day life in the city.

You can find additional information at www.bbapumps.com

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