



The basis of the whole suction anchor process is to lower a steel pile to the seabed connected by a suitable hose to a pump on the deck of the ship. The end of the pile is allowed to sink into the mud, and then the pump is started to evacuate the seawater inside it. As the water is removed, the pressure forces the tube into the seabed. Eventually, when only the top is exposed, a ROV disconnects the pump hose. If it is not already connected it can also connect up the mooring.

Suction anchors used to be deployed by barges or large construction or crane vessels, but the technique has been refined so that now a sufficiently large anchor-handler to house a number of piles on deck and enough wire on its storage reels can do the job. In addition it requires a means of launching and recovering and operating an ROV.

The motivation for this approach is of course that the moorings can be laid independent of the rig, so that if day rates for semi-submersibles are particularly high some money can be saved. Whether such an approach would be valid in the Atlantic margin is debatable since a couple of top of the range anchor-handlers might equal the day rate of a semi-submersible, and the weather window is all.

Vertical Lift Anchors

In addition to pre-laying suction anchors it is possible to pre-lay conventional anchors and high holding power anchors and to pretension them using one of the patented tensioners produced either by Vryhof or Bruce. This operation has been limited to shallower waters in the past and, all in all, the technique is not really practical, since the lengths of chain required are unacceptable.

However, as if by magic these two difficulties are overcome by the Vertical Lift anchor, which ceases to be dependent on the horizontal component of the mooring to hold it in position. Vertical Lift anchors may be placed on the seabed hanging from the mooring wire; the ship can then apply the required forces by bollard pull to break a tension link. The anchor then takes up a new attitude. This allows a single but powerful vessel to lay and tension anchors, which in themselves are dimensionally easy to deal with. An alternative might be for the ship to embed the anchor in the seabed but leave the rig to carry out the tensioning operation.

A Bruce VLA – Vertical Lift Anchor on the deck of the ship. This and other designs rely on the power of the ship to break a weak link and change the attitude of the flukes. Picture: Tony Poll.