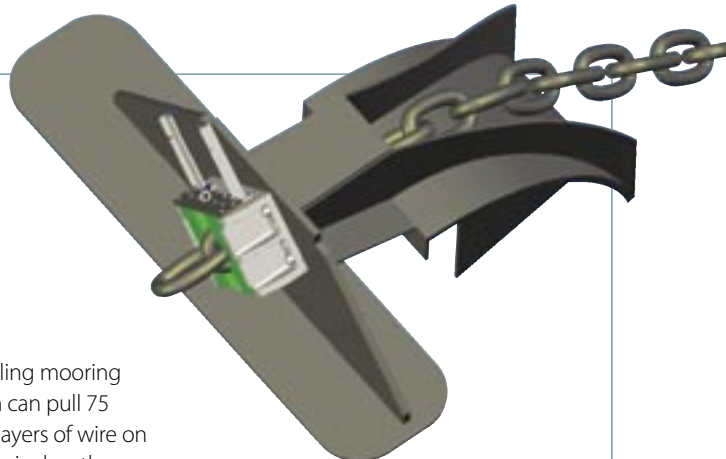
Anchor-Mooring system for FSO



Rolls-Royce was selected to supply the 12-point spread mooring machinery system for the floating storage and offloading vessel *Betina*, operated by Malaysia International Shipping Co and converted from a tanker by Malaysia Shipyard Engineering. *Betina* will be stationed on the South Angsi oil field off Malaysia.

The deck machinery department in Norway worked closely with the customer from an early stage in the project, analysing various solutions to identify the best from both technical and economic viewpoints, based on the required 20 year lifecycle.

The optimum solution was to use two main winches, one handling all the moorings deployed from the forward end of the vessel, the other handling mooring from the aft end. Each winch can pull 75 tonnes with any number of layers of wire on the drum. In addition to the winches there are sheaves and fairleads to position the wire for tensioning each mooring and chain stoppers to lock the main chain moorings. Four horizontal sheaves which can take a load of 100 tonnes at a wrap angle of 120 degrees, guide the 56mm wire rope. Two moveable turn-down sheaves can be positioned to guide the wire from the horizontal plane at deck level to the vertical at the fairleads, the load again being 100 tonnes, but with a 90 degree wrap angle.

Six fairleads rated for a load of 800 tonnes at 105 degrees wrap are located on the aft deck, but on the foredeck guides are built into the structure. There are altogether twelve fixed chain stoppers, six to hold the forward moorings, six for the aft, which can cater for the same load, based on the breaking load of 95mm chain.

Close co-operation with the customer paid off, and all the Rauma Brattvaag equipment was provided on time, within the very short delivery schedule of three months for the fairlead brackets and five months for other items.