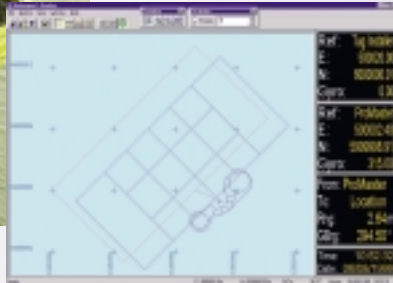


Sub-Sea

Engineering Systems Integration

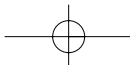
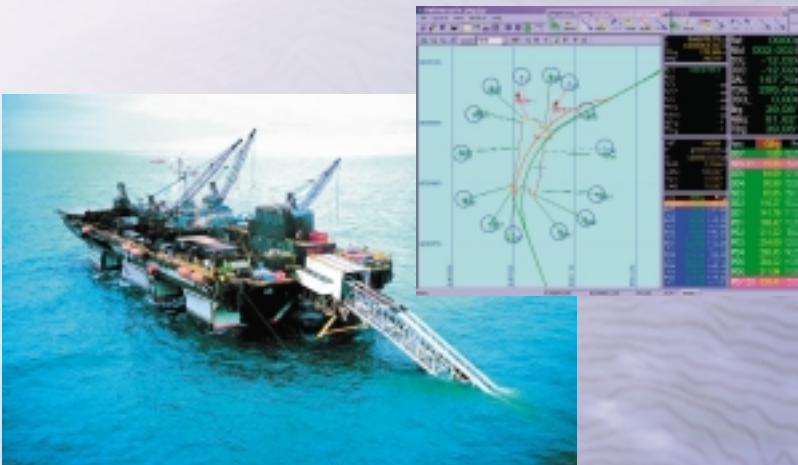


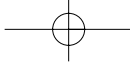
YANGTZE RIVER SUB-SEA DAM – Shanghai Port Construction Co. is responsible for the construction of an underwater dam in the Yangtze River estuary with the purpose of controlling the river current, tide and erosion. Tunnel elements are submerged on the seabed forming a dam of a total length of 50 km, which will be covered with rocks dumped from two 60x80 meter barges. In joint cooperation with Atlas Hydrographics EIVA is responsible for the on-line and off-line software for the two rock-dumping systems, including provision of information about the "as built" structure against the theoretical dam structure. The systems each comprise a/o Atlas FanSweep15 multibeam echosounder, RTK DGPS, motion sensor, sound velocity profiler, and NaviPac, NaviScan, and specially designed software based on NaviModel.



PROMASTER REMOTELY OPERATED TOOL – The ProMaster, developed by b&a Industries BV, is a self-contained remotely operated tool, that mates to a load to be deployed by the ship's crane. The ProMaster incorporates its own Dynamic Positioning (DP) system which takes reference from the ship's DGPS system and its own sensors to provide position and offset information to ProMaster's control system. With the collaboration of Thomson Marconi Sonar, Mors, Hydrovison and EIVA, new positioning methods have been developed, using new software designs and combined survey equipment packages. The ProMaster provides a radically new approach to the safe handling, rapid and precise deployment or recovery of heavy loads to depths of up to 3000 meters without the need for guide wires and pre-lay of an LBL acoustic system.

BARGE/TUG MANAGEMENT SYSTEM – EIVA provides leading offshore contractors with barge/tug management systems for use during installation of flowlines, umbilicals, pipelines and other subsurface infrastructure. System installations comprise the LB 200, one of the world's most sophisticated semi-submersible pipelay barges, operated by Stolt Offshore. With the ability to lay pipe of 8" to 60" diameter with fully automated welding systems, the LB200 has successfully carried out pipe lay and trunkline lay operations in the North Sea, West Africa, the Mediterranean and the Gulf of Mexico.





Sub-Sea Engineering Systems Integration

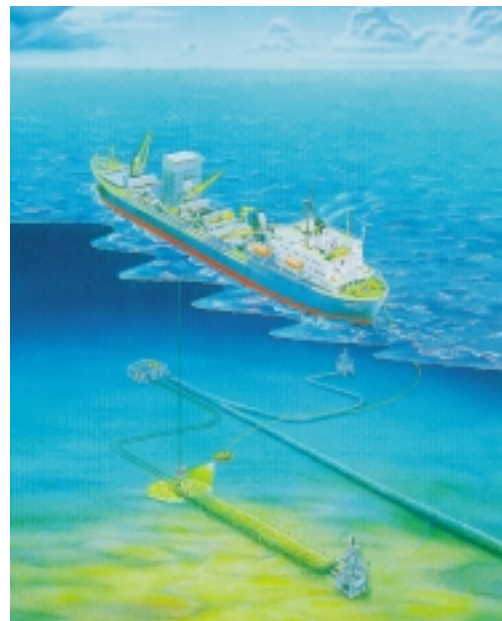
JD CONTRACTOR – Acknowledged as the largest and most advanced diving business in Denmark, JD Contractor is operating primarily in Danish waters but also holds contracts with large specialised businesses abroad. JD Contractor’s business activities comprise laying-out and embedding of submarine cables and pipelines, inspections and environmental sampling, ROV assignments and other diving assignments. For these purposes JD Contractor is using NaviPac software for precise navigation and positioning. Examples of the most common types of underwater construction carried out by JD Contractor includes windmills at sea, harbours and ferry berths, bridges, pylons, lighthouses, pipelines etc.



BALLAST HAM DREDGING – Specialised in dredging and marine construction projects around the world, Ballast Ham Dredging is a leader in the international dredging market. Ballast Ham Dredging operates the world’s largest modern fleet of dredging equipment including NaviScan software for multibeam data acquisition. NaviScan is used in the construction and maintenance of harbours and waterways, land reclamation, airports, coastal and shore protection and services rendered by Ballast Ham Dredging to the offshore industry.



ROCK DUMPING – EIVA is providing sub-sea engineering contractors with rock dumping systems based on the EIVA software product suite and selected hardware. The combined use of EIVA software with in particular Doppler log, pipe-tracker and multibeam echosounder makes the systems optimal for all sub-sea activities associated with rock dumping, from navigation and operational display of the scenario to final reporting and documentation.



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