

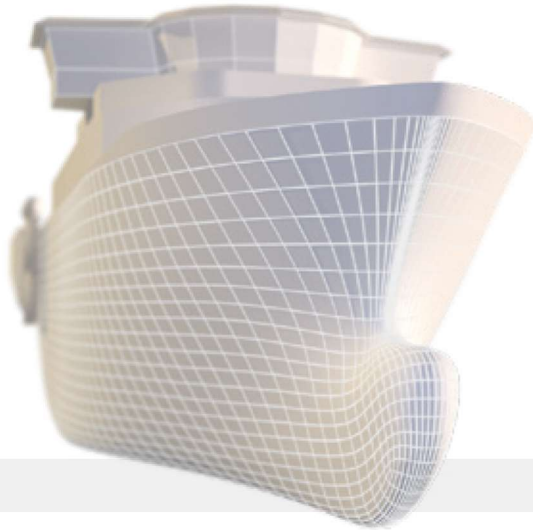


SEISMIC VESSELS PROJECTS

1. DESIGN

VESSEL CONCEPT DESIGN

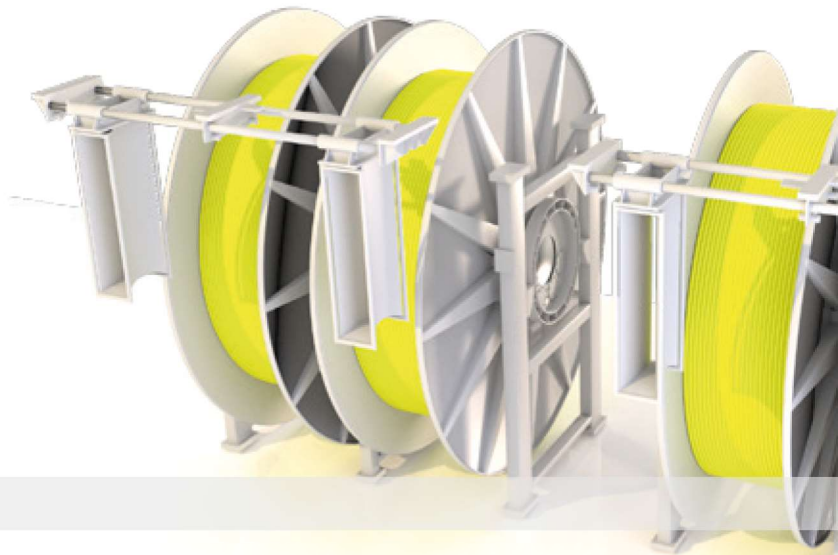
At Kappa Offshore Solutions, vessel design loop does not start with drafting a preliminary general arrangement. It starts with the precise hydrodynamic characterization of the target seismic configurations. In other words, the cargo is not fitted in the ship but the ship is designed around the cargo. This is how we can guarantee right sizing and perfect integration of machinery components, propulsion plant and seismic equipment handling systems. Experience has shown that this is the key success factor in designing safe and cost efficient seismic vessels.



SEISMIC EQUIPMENT SPECIFICATION & SOURCING

Our engineers and naval architects acquired years of field experience working aboard different seismic vessels operating with different technologies. We can therefore advise our customers in specifying and sourcing any kind of seismic equipment at the very early stages of a new build or conversion project.

In addition, seismic vessel rigging is one of our specialty. Rigging parts list including necessary tools and consumables can be provided alone or as part of a turnkey package including sourcing, purchasing and shipping of a complete rigging set.



2. KNOWLEDGE TRANSFER



OPERATION MANUAL REDACTION

Thanks to our extensive experience of marine seismic operations encompassing 2D, 3D, 4D, and OBC/OBN, we are able to develop tailor-made operations manuals including all necessary standards and procedures to operate a vessel. Such procedures encompass for example project planning, deck operations, equipment maintenance, and emergency response plans.

PROJECT STAFF TRAINING

Kappa Offshore Solutions developed a 4-days training course covering the main theoretical, technical and operational aspects of marine seismic acquisition. This training course targets all staff involved in a seismic vessel project (shipyard and its contractors, ship owner, ship manager, scientific crew, etc.) and can be delivered at our customer's premises if required. Training course details are available upon request.

3. PROJECT SUPERVISION

SETTING TO WORK - HARBOUR & SEA ACCEPTANCE TESTS - SEISMIC OPERATIONS

Kappa Offshore Solutions is able to deploy core seismic crews at the building yard to supervise and perform setting to work and harbour acceptance test operations. We can also deploy complete seismic crews to ensure successful sea acceptance tests. Our crews will also provide field training on board the vessel during the first year of operations, ensuring smooth and gradual transfer of competency to the



GENERAL TECHNICAL SUPPORT

Our customers can rely on Kappa Offshore Solutions experience all along the vessel project cycle. Our staff was involved in not less than 12 seismic vessels new building or conversion projects in the past 15 years among which Oceanic Challenger (Conversion from a cable layer to a 12 streamers 3D vessel), CGG Alizé (Complete refit of seismic work decks), Oceanic Vega (New build 20 streamers 3D vessel), Pacific Finder (New build 4 streamers 3D vessel), Oceanic Endeavour (Complete refit of propulsion plant), Oceanic Sirius (New build 20 streamers 3D vessel), Coastal Challenger (Shallow draft OBC cable layer) and MTA Turkuaz (New build 8 streamers 3D and oceanographic research vessel).