



Photo by Flying Focus-Bussum, The Netherlands

BOURBON TRIESTE

A MULTI-PURPOSE OFFSHORE SERVICE VESSEL FROM DE HOOP LOBITH

Builders: Shipyard De Hoop Lobith, Tolkamer, Netherlands

Owners: Bourbon (Offshore Division), Paris, France

On September 27th 2007, Shipyard De Hoop Lobith delivered the 'Bourbon Trieste' to her owners Bourbon, a key service supplier to the offshore industry with a fleet of 280 vessels and another 189 under construction. De Hoop Lobith has built the 'Vissolela', a similar but slightly smaller vessel, for the same owner which was delivered in June 2004.

The 'Bourbon Trieste' will be chartered out to Sonsub, which has recently become part of the large Saipem group. Sonsub is a provider of subsea construction services to the offshore oil and gas industry. The company has 20 years of experience in developing and operating remotely operated subsea systems. The vessel will be mainly used on the west coast of Africa, but its first job was in Egypt. It

will be engaged in offshore construction, maintenance support, ROV support, oil recovery and standby-rescue activities.

Design

The 'Bourbon Trieste' is a Multi Purpose Offshore Service Vessel. It is characterised by a modern dynamically positioned diesel-electric propulsion system, a large open working deck, a moonpool of about 7.4 m x 7.4 m, a large offshore knuckle boom crane and the accommodation on the foredeck, as is typical for this kind of ship.

It provides accommodation for 66 persons in single and double cabins, 50 of which can be considered as special purpose personnel. The ship has a range of about 9.360 nautical miles,

which it can cover in 30 days. When it is operating in dynamically positioned mode, it will have on average an endurance of 50 days.

Moonpool

In order to facilitate work, the aft deck on 'Bourbon Trieste' is kept as low as possible. This has been achieved by placing the engine room forward and using electric azimuthing thrusters in the aft. Below the working deck, there is a large hold with a central hatch and wing tanks for fuel, waterballast and fresh water. A moonpool is built-in for future use but not in service, as the in the first contracts of the ship, it won't be needed. Upon delivery, the moonpool was closed with plates on the bottom and top, but these plates can easily be



Photo by To The Point Events

The aft working deck is covered with wooden planks

cut away when the moonpool has to be taken in service.

Certification

The vessel is classed by Bureau Veritas with following service notations:

- Oil Recovery Ship,
 - Fire Fighting Ship I with Water Spray System,
 - Special service / Standby Rescue Vessel,
 - Special Service / Air Diving - Offshore Support
- Because of lack of French nautical personnel, she will fly the Luxembourg flag and is compliant with Panama Canal and Suez Canal regulations.

Principal particulars

Length o.a.	85.25 m
Length waterline	81.70 m
Beam moulded	18.00 m
Depth moulded	7.40 m
Draught (design)	4.50 m
Deadweight (design dr.)	1.815 tons
Deadweight (summer dr.)	3.210 tons
Gross tonnage	4.150
Trial Speed	12 knots

Capacities

Ballast water	1.640 cu.m
Fresh water	370 cu.m
Diesel oil	770 cu.m
Recovered oil	300 cu.m

Double hull

A lot of attention has been paid to making the ship robust to withstand damages. There is of course a double bottom throughout most of the ship's length, but also the engine room has been executed with a double hull. The transom is also double-walled to protect the aft machinery. The vessel is built in accordance the rules for special purpose ships.

400 mm high bilge keels are fitted to dampen the roll movements. The forecastle deck has already been sufficiently strengthened to allow the later installation of a heli-deck on the foredeck.

Permanently fixed tires around the hull are installed as fendering. An anti-heeling system is installed to keep the ship level during heavy lift operations. It consists of two wing tanks which are connected by a cross-over. Two 1.300 m³/h pumps can pump the water from starboard to portside and vice versa.

A deckhouse just aft of the accommodation tower provides space two ROV (remote operated vehicle) containers.

Rescue zone

The 'Bourbon Trieste' is equipped for rescue operations. On the aft working deck, there is

a rescue zone where the handrails can be removed. Access to the ship is through an 8 m wide climbing net. A seating area with foldable seats for 150 survivors has been reserved on the tweendeck in the engine room. On the aft deck, an area is marked as the helicopter winching area. A morgue has capacity for 15 non-survivors.

The rescue inventory further includes 190 life vests, 35 immersion suits and 150 sets of towels, blankets and coveralls.

So-called "surfer landing frames" can be attached to the outside of the hull. These provide a quick mooring place for the small boats (called surfers) which are used for crew transfer. The frames are normally stored in the hold under the working deck.

Deluge system

As a certified class-I Fire Fighting Vessel, the ship also has two firefighting monitors with a total capacity of 2.400 m³/h and two additional fire fighting pumps to combat fires on neighbouring ships or structures. With a fixed water spray system, also called deluge system, the entire outside of the ship can be continuously washed down with seawater for operations near a blazing fire.

Propulsion

The vessel is propelled and manoeuvred with 5 thrusters, all from Rolls-Royce. With this arrangement, the vessel manages a trial speed of 12 knots. In DP-mode, it can keep its position in winds up to 15 m/s, with a significant wave height of 3.5 m. The thrusters are the following:

- 2 azimuthing thrusters aft;
- 1 retractable azimuthing thruster in the bow;
- 2 transverse tunnel thrusters in the bow.

The stern thrusters have 2.300 mm propellers and have a continuous rating of 1.800 kW. They are hydraulically rotated for steering. The retractable bow thruster has a 1.600 mm prop and can convert 600 kW of power into thrust. The tunnel thrusters are both 1.750 mm in diameter and are rated at 780 kW. All thrusters are remote controlled through the duplex DP system and have local manual controls. The power for all these is generated in four gensets with a maximum output of 1425 kW each.

Dynamic Positioning

The 'Bourbon Trieste' is fitted with a duplex dynamic positioning system according to DP class 2. This means that even if a failure occurs in one of the active components (e.g. a generator or a thruster), the ship will be able to maintain its position. A step further would be DP class 3, which means that its position can be maintained even if one compartment is flooded or destroyed by fire.

The position of the vessel is verified in 3 different ways: through GPS, through transducers (sensors) which use sonar to determine the position relative to underwater beacons and through an optical system, which uses reference points above the water.

Five thrusters provide extreme maneuverability



Photo by Flying Focus-Bussum, The Netherlands



The knuckle-boom crane has active heave compensation

Already more than 1000 vessels worldwide are equipped with a dynamic positioning system.

Deck gear

On deck two cranes are installed. The largest is a 110 ton heavy knuckle boom crane, with active heave compensation, used for subsea construction operations. It has a SWL of 30 tons at 29.3 m or 90 tons at 13.2 m. Another smaller crane is fitted on SB with a maximum reach of 19 m. This crane has a fast winch to bring tools to both ROV's. Both cranes can reach a waterdepth of 2300 m.

The mooring winches were supplied by Kraaijeveld. The ROV's (remote operated vehicles) can be launched over the PS or SB side with hydraulically operated davits.

A skimmer and oil retaining dams are stored in the hold. When an oil spill occurs, the oil can be contained within the dams and can be pumped onboard with the skimmer. The ship has a 300 cubic metres holding tank for recovered oil.

Conclusion

Bourbon started out in 1948 as a sugar company based on the Island La Réunion. From 1990, its activities have diversified and started to include marine activities. In 2001, it was decided that the group would focus on marine services only. Non-marine entities were sold, which provided the capital to acquire a fleet of modern ships. The company now has three divisions: off-shore, bulk and towage & salvage. From the end of 2007, one ship will be delivered to Bourbon every 15 days over the next 4 years.

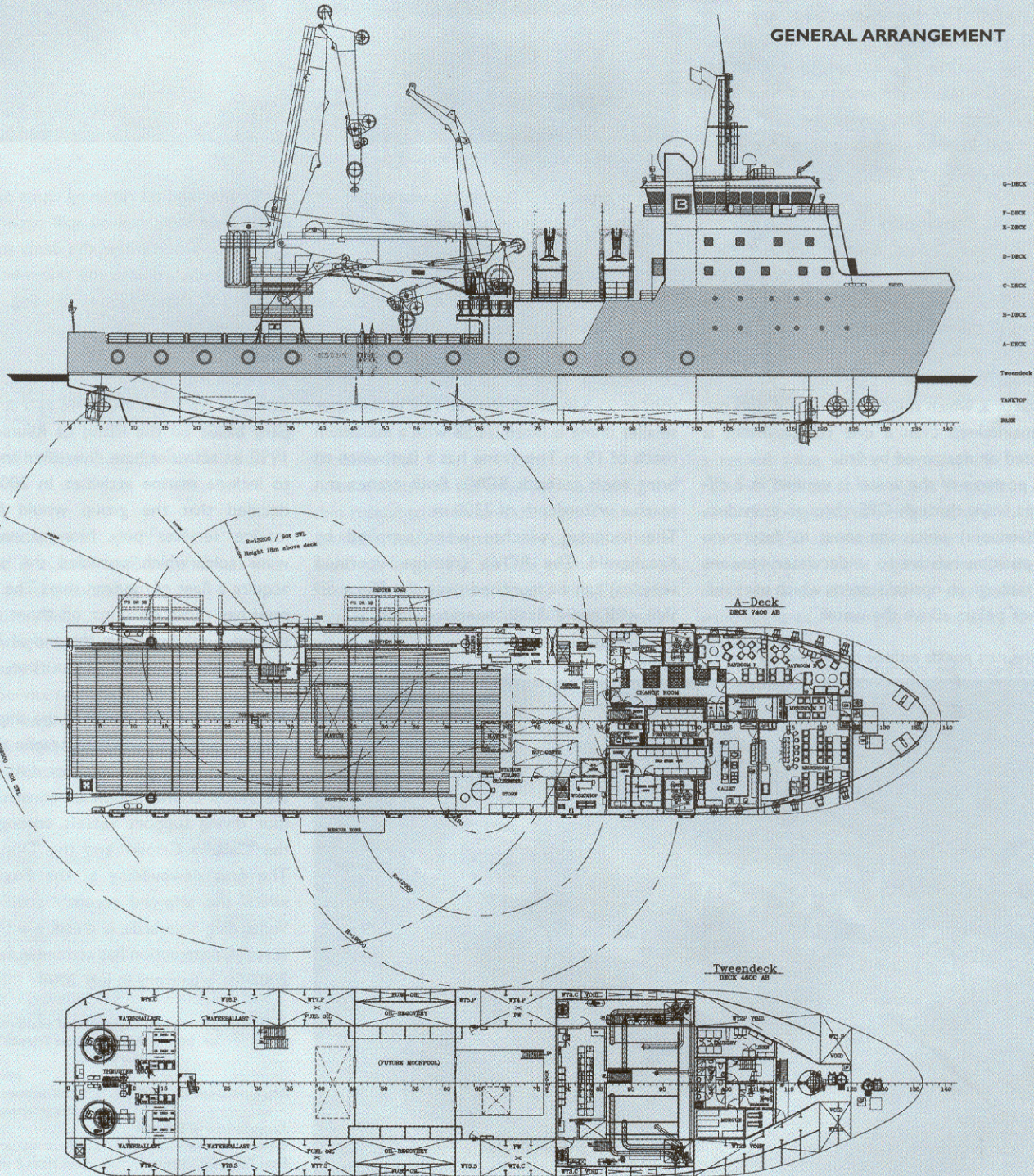
The 'Trieste' in the name of the ship is a reference to the famous bathyscaphe that holds the world record for deepest dive. For now, De Hoop Lobith continues construction on four diving support vessels, amongst which the 'Caballo Criollo' and the 'Don Amado'. The first newbuilding at the Foxhol yard, which the shipyard recently acquired from Volharding Shipyards, is diesel electric supply vessel. Construction has started in September 2007 for a delivery in July 2008.

Subcontractors and suppliers of equipment fitted on board the 'Bourbon Trieste' (partial list)

Alfa Laval Benelux, Breda	fuel oil separators, fresh water generator
Axcos Industrial Exhaust Systems, Schiedam	exhaust silencers
Boer Staal, De, Uitgeest	steel plates & profiles

- Bovi**, Tubbergen upholstery
- Converteam**, Massy Cedex (F) dynamic positioning; motors, drives, transformers propulsion
- Droste Elektro**, Lobith-Tolkamer electrical installation
- Econosto Nederland**, Capelle a/d IJssel valves
- FFS**, Moss (N) FIFI pumps
- Frank Mohn**, Bergen (N) Framo anti-heeling system; Deepwell cargo pumps
- GTK**, Dieren galley equipment
- Hendrik Veder**, Rotterdam mooring ropes
- Intech Marine & Offshore**, Rotterdam chiller
- Inexa**, Hedehusene, (DK) modular bulkheads
- International Paint (Ned.)**, Rhoon coating systems
- Kraaijveld, Machine & Lierenfabriek**, Sliedrecht anchor- & mooringwinch; capstans
- Kroon Technische Groothandel**, Hoogezaand Alvedoor firedoors; TNF accommodation systems; WetCab prefab wetunits
- MacGregor**, Kaarine, (FIN) lashing equipment
- Marioff Corporation**, Vantaa (FIN) water mist
- Materiaal Metingen Europe (MME)**, Ridderkerk gangway
- Nautische Unie Hunfeld**, Farmsum firefighting- , nautical- & safety equipment
- Nicoverken**, Schiedam Blücher marine pipes, fittings, drains & channels; stainless steel sanitary discharge system
- NRF**, Mill coolers
- Pon Power**, Papendrecht Caterpillar genset; harbour diesel generator
- Qua-Vac**, Almere sewage plant
- Radio Holland Netherlands**, Rotterdam navigation- & communication systems
- Reikon**, Spijkenisse Azcue pumps
- Roden Staal**, Drachten ship sections
- Rolls-Royce Marine Benelux**, Pernis RT Z-drives; retractable, tunnel thrusters
- Ship's Equipment Centre (SEC)**, Groningen bollards; fairlead; chocks
- Smits Neuchâtel**, Utrecht underfloors
- Sperre Rotterdam**, Ridderkerk Sperre starting air- & TMC working air compressors
- Sterling Fluid Systems (The Netherlands)**, Beverwijk bilge water separator
- Temaro**, Rotterdam solasafe anti glare sunblinds
- Trinox**, Hardinxveld-Giessendam portholes & windows
- VDI**, Rotterdam insulation
- Veld Koeltechniek**, Groenlo provision cooling
- Vestdavit**, Bergen (N) MOB & rescue boat, inclusive davit for both
- Vries Gesta, Jac. De**, Middenbeemster hotwater boiler
- Wesco Navy**, Hamburg (G) laundry machine
- Winel**, Assen WT sliding doors & doors; tank vent check valves
- Wortelboer**, Rotterdam anchors & chainable

GENERAL ARRANGEMENT



Aalborg Industries Inert Gas Systems BV
ABB Marine & Turbochargers
Absorbit Trading BV
Aegir-Marine BV
Aggreko
Ajax Brandbeveiliging BV
Alewijnse Marine Systems
Alfa Laval Benelux BV
Alphatron Marine BV
Amarcon BV
AmniTec BV
AMW Marine BV
Het Anker BV
Aquality BV
Arbode Maritiem BV
Atlas Copco Ketting Marine Center BV
Bakker Sliedrecht Electro Industrie BV
BarwilUnitor Ships Service
Beele Engineering BV
Bell Licht
Bloksma BV
Machinefabriek Börger BV
Bosch Rexroth BV
BOT-Groningen BV
Brevini Nederland BV
Centraalstaal BV
Chartworx Holland BV
Chugoku Paints BV
Concordia Shipyards
Conoship International BV
Coops en Nieborg BV
Corrosion & Water-Control BV
CP Heat Exchanger Technologies BV
Croon Elektrotechniek BV
CUBIC Marine BV
Cummins Holland BV
DAGIN Marine Technology
Damen Marine Components
Damen Shiprepair Rotterdam BV
Danfoss BV Industrial Controls
Datema Delfzijl BV
Den Haan Rotterdam BV
Deno Compressors
Discom BV
Doedijns - Koppen & Lethem BV
Draka Marine, Oil & Gas
Droste Elektro BV
Drumarkon International BV
Dutchi Electric Motors BV
Dutch Romanian Marine Consultants BV
Econosto Nederland BV Maritiem
Eefting Engineering
Eekels Elektrotechniek BV
Elinex Power Solutions BV
eL-Tec Elektrotechnologie
Emitech BV
ETEHA BV - Slangtechniek
Flender Bruinhof Marine
Future Pipe Industries BV
Gebhard-Electro BV
Germanischer Lloyd Netherlands BV
GMS Instruments BV
Greenship BV Treatment Technology
Grenco BV
GTI West Industrie, Marine & Offshore (Mechanical)
Ha-Ce Engineering BV
Hanwel Environmental and Energy BV
HDC Marvelconsult BV
Heatmaster BV
Heinen & Hopman Engineering BV
Helmers Accommodatie en Interieur BV
Hertel Defence & Offshore
HGG Profiling Equipment BV
Holland Marine Services Amsterdam BV
Holland Valve Solutions BV
Honeywell Enraf
HRP Thruster Systems BV
Huisman Special Lifting Equipment BV
IHC Hytop

IHC Lagersmit BV
IHC Metalix BV
Imax Trading & Engineering BV
IMC Corporate Licensing BV
Impas BV
Imtech Marine & Offshore BV
International Paint (Nederland) BV
Intertech BV
IPCO Power fts BV
JMV Forward Maritime BV
JOHNSON CONTROLS Systems & Service BV
Johnson Pump BV
Kaefer Opticon BV
Kelvin Hughes Nederland BV
Koers & Vaart
Koike Europe BV
Köko/K.S.M. Holland
Kongsberg Maritime Holland (KMH) BV
Koninklijke Dirkwager
Konutherm BV
Machine- & Lierenfabriek C. Kraaijeveld BV
Kranendonk Production Systems BV
Kroon BV
KST BV
KTR Benelux BV
Kuipers Scheepvaart BV
Kwant Controls BV
Lankhorst Ropes
Lemans Nederland BV
Van Lessen en Punt Holding BV
Van Leusden BV
Liebherr Maritime Benelux BV
Lloyd's Register EMEA
Loggers BV
Logic Vision BV
Mampaey Offshore Industries BV
MAN Rollo
Marine Engineering Star BV
Marine Service Holding BV
Marine Service Noord BV
Maro Service Maritime BV
MasterShip Software BV
MATECS
MaxCargo Group
Van Mechelen Lifting Gear
Mennega Special Structures
Merrem & la Porte BV
Meteo Consult BV
Minks Kunststofftechnik BV
MME Group
Motrac Hydrauliek BV
NzSafety BV
Nauticare
Navico Benelux BV
Navylle BV
Ned-Deck Marine
NetWave Systems BV
NewDeal Seals BV
NewThex BV
Nicoverken Marine Services
Nieland
Nijhuis Pompen BV
Northrop Grumman Sperry Marine BV
Novatug BV
Novio Nautic BV
NRF BV
N.R. Koeling BV
Numeriek Centrum Groningen BV
Orlaco Maritime CCTV
Pauw Technical Consultancy BV
Pharos Engineering BV
Phoenix Vibration Controls BV
Pon Power BV
Praxis Automation Technology
Progress Technique BV
Promac BV
PS Marine Services Holland
Radio Holland Group BV
Radio Holland Netherlands BV
Redwise Maritime Services BV

Rensen Seatrade BV
Ridderinkhof BV
Riwa Boating International
ROC 'Kop van Noord-Holland'
Roden Staal BV
Roemeg Trading Company BV
Roodhart Marine Services BV
Rotodyne Ventilatoren BV
Rotor BV
RR Holland BV
Rubber Design BV
Ruysch Technisch Handelsbureau BV
S.S.T. Staalsnijtechniek BV
SAM Electronics Nederland BV
Scheepvaart en Transportcollege (STC)
Schelde Gears BV
Schelde Marine Services
Scheldepoort Repair & Conversion Yard
Sea of Solutions BV
Sebert Trillingstechniek BV
Serdijn Ship Repair BV
Ship's Equipment Centre
Siemens Nederland NV
SigmaKalon Marine & Protective Coatings BV
Smits Neuchâtel Marine Department BV
Spaansen Vloei vloeren BV
SSM-Europe BV
Statendam Steel Plates BV
Stolk Transmission Services
Stork Gears & Services
Stork Special Products BV
Straaltechniek International BV
Machinefabriek L. Straatman BV
Stratos
Techno Fysica BV
Theunissen Technical Trading BV
TNO CMC
Transocean Coatings
BV Twentsche Kabel Fabriek
BV Technisch Bureau Uittenbogaart
VAF Instruments BV
Van Voorden Gieterij BV
Van Voorden Reparatie BV
VDL Klima BV
Van der Velden Marine Systems
Verhaar Omega BV
Veth Motoren BV
Voith Turbo BV
VOSTA LMG BV
Vuyk Engineering Rotterdam BV
Wärtsilä Propulsion Netherlands BV
Westfalia Separator Nederland BV
Wetering Rotterdam BV
Winel BV
Winteb VOF
WNL Marine Electronics
Wolfard & Wessels Werktuigbouw BV
Woodward Governor Nederland BV
Worldwide Portable Machining BV
Wouter Witzel Eurovalve BV

New members
Köko/K.S.M. Holland
Riwa Boating International

This page exclusively contains HME's members. A complete overview, including associated members, can be found at www.hme.nl

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