



## BAHRI ABHA: Modern con-ro design

Shipbuilder: **Hyundai Mipo Dockyard Co., Ltd**  
 Vessel's name: **Bahri Abha**  
 Hull No.: **8085**  
 Owner/operator: **Bahri (National Shipping Company of Saudi Arabia)**  
 Country: **Saudi Arabi**  
 Designer: **Hyundai Mipo Dockyard Co., Ltd**  
 Country: **Korea**  
 Model test establishment used: **SSPA Sweden**  
 Flag: **Saudi Arabia**  
 IMO number: **9620944**  
 Total number of sister ships already completed (excluding ship presented): **2**  
 Total number of sister ships still on order: **3**

**BAHRI Abha**, the first in six container/ro-ro (con-ro) carriers, was designed by Knud E. Hansen and built at Hyundai Mipo Dockyard Co., Ltd. HMD), which was delivered to its owner Bahri (NSCSA) in February 2013.

As part of the rebranding of NSCSA, Bahri as it is now known, has ordered these six latest vessels to further expand the fleet and to also renew it. Sporting the new blue livery *Bahri Abha* will be replacing the vessel *Saudi Abha*. The latest series will also offer a different cargo structure compared to the previous con-ro vessels, which had the capacity for 2,310TEU, *Bahri Abha* has a reduced capacity of 364TEU, but has increased its ro-ro capacity to 24,000m<sup>3</sup>.

With deadweight of 26,000dwt each, these vessels are unique in their smaller size compared to the current fleet and in that they have more cargo lifting capabilities with lower fuel consumption. It is estimated that these lighter weight vessels will consume 45% less fuel, the company has claimed. To enable this fuel saving the vessel is powered by a Hyundai-Wärtsilä 7RT-flex58T-D (Tier-II) that has MCR of 12,450kW giving the vessel a service speed of 17knots at 85% MCR.

*Bahri Abha* has a bulbous bow, transom stern, open water type stern frame, single bulb rudder and single-screw controllable-pitch propeller driven by a slow-speed diesel engine. The integrated propeller and rudder, Energopac, has been designed by Wärtsilä with a silicon coating applied to increase the propulsion efficiency.

The con-ro vessels are specialised in carrying general and project cargo and several other types of ro-ro cargo. These vessels are equipped with a loading bridge with a capacity of 250tonnes and heavy-lift cranes with a capacity of 240tonnes enabling them to load different types of goods.

*Bahri Abha* has five fixed decks and two hoistable decks and has one row of pillars close to the centre line of the vessel. There is one stern quarter ramp on deck three and two sets of deck cranes on number four forward open deck.

Dangerous goods in packaged form can be loaded on the weather deck and closed ro-ro cargo space. The air draught from the waterline of ballast condition with arrival bunker is not more than 41.3m.

The vessel has subdivisions for the fore peak tank, chain lockers, bosun store and bow thruster and emergency fire pump space. A double side space under deck 3 is used for water ballast tanks and pipe ducts and a double side space on deck 3 to be arranged as void spaces.

### TECHNICAL PARTICULARS

Length oa:	224.96m
Length bp:	211.30m
Breadth moulded:	32.30m
Depth moulded	
To main deck:	13.30m
To upper deck:	27.70m
Width of double skin	
Side:	2.13m
Bottom:	1.70m
Draught	
Scantling:	9.50m
Design:	8.90m
Gross:	50,714gt
Deadweight	
Design:	22,400dwt
Scantling:	25,960dwt
Speed, service:	17knots
Bunkers	
Heavy oil:	3,101m <sup>3</sup>
Diesel oil:	220m <sup>3</sup>
Water ballast:	11,480m <sup>3</sup>
Daily fuel consumption	
Main engine only:	41tonnes/day
Classification society and notations:	LR, + 100A1, Roll On Roll Off Cargo Ship, *IWS, LI, ACS(B), EP, +LMC, UMS, NAV1
	Descriptive notes: Part Higher tensile steel, ShipWright(BWMP(T), SCM, SERS)
% high-tensile steel used in construction:	50%
Main engines	
Design:	Wärtsilä
Model:	7RT-flex58T-D (Tier II)
Manufacturer:	Hyundai Heavy Industry Co., Ltd
Number:	1
Type of fuel:	HFO/MDO
Output of each engine:	12,450kW x 97rpm
Propellers	
Material:	Ni-AL-Bronze

Design/manufacture:	Wärtsilä
Number:	1
Fixed/controllable pitch:	Controllable
Diameter:	6.7m
Speed:	97rpm
Main-engine driven alternators	
Number:	1
Make/type:	Nishishiba Electric Co., Ltd
Output/speed of each set:	2,200kW x 97rpm
Diesel-driven alternators	
Number:	3
Engine make/type:	Hyundai Heavy Industry Co., Ltd/ Vertical in-line, trunk piston, 4-cycle
Type of fuel:	MDO
Output/speed of each set:	1,560kW x 720rpm/ 2,320kW x 720rpm
Alternator make/type:	Hyundai Heavy Industry Co., Ltd
Output/speed of each set:	1,875kVA, 2,750kVA x 720rpm
Boilers	
Number:	1
Type:	Aux. boiler, small oil-fired, pressure atomising
Make:	Aalborg
Output, each boiler:	2,500kg/h
Cargo cranes/cargo gear	
Number:	2
Make/type:	Cargotec Hydraulic Crane
Performance:	120tonnes x 15m, 40tonnes x 32.5m
Other cranes	
Number:	2
Make/type:	Oriental Electric-hydraulic driven
Tasks:	Provisions handling
Performance:	5tonnes x 9m
Mooring equipment	
Number:	5
Make/type:	Rolls-Royce Marine Electric
Special lifesaving equipment	
Number of each and capacity:	1 x 36persons
Maketype:	Fassmer-Marland Ltd
Hatch covers	
Design:	Cargotec
Manufacturer:	Cargotec
Type:	Lift away type
Containers	
Total TEU capacity:	702
On deck:	300
In holds:	402
Tier/rows	
On deck:	4/12
In holds:	2/8
Doors/ramps/lifts/movable car decks	
Number of each:	1 x quarter ramp, 2 x stern door, ramp door, 2 x hoistable car deck, 1 x weather tight bulkhead door
Type:	hydraulic motor driven
Designer:	MacGregor
Cargo control system	
Make:	Hyundai Heavy Industry Co., Ltd
Ballast control system	
Make:	Hyundai Heavy Industry Co., Ltd
Water ballast treatment system	
Make/Capacity:	Techcross/600m <sup>3</sup> /h
Passengers	
Total:	6
Cabins:	3
Stern appendages/special rudders:	Energypac
Bow thrusters	
Make:	Hyundai Heavy Industry Co., Ltd
Number/Output:	2,000kW
Stern thruster	
Make:	Hyundai Heavy Industry Co., Ltd
Number:	500kW
Bridge control system	
Make:	Hyundai Heavy Industry Co., Ltd
One-man operation:	Yes
Fire detection system	
Make/type:	Consilium Salwico Ro Ro
Fire extinguishing systems	
Engine room:	Seaplus/ Local water mist MK/ Low pressure CO <sub>2</sub>
Vehicle spaces:	NK/ Low pressure CO <sub>2</sub>
Radars	
Number:	3
Make:	Sperry Marine
Model:	Vision Master FT 340 Chart Kit Format Flat Panel
Waste disposal plant	
Incinerator:	Hyundai Marine Machinery Co., Ltd/ MAXI 1500SL WS
Waste compactor:	Metos/ IP400
Waste shredder/crusher:	Metos/ GFK550
Sewage plant:	Il Seung Co., Ltd/ ISS-43N
Contract date:	6th March 2011
Launch/float-out date:	23 October 2012
Delivery date:	5 February 2013



