

built on trust™



VARD™

a Fincantieri company

ARCTIC PASSION – 2018

Torkild Skjong - VARD Conceptual Design Department

VARD's ENTRY INTO EXPEDITION CRUISE DESIGN

About VARD

VARD is one of the major global designers and shipbuilders of offshore and specialized vessels

- Headquartered in Ålesund, Norway
 - Delivered more than 300 vessels since 2000
 - Listed on the Main Board of Singapore Exchange (SGX)
 - VARD's major owner is Fincantieri the worlds larges cruise vessel builder, approx. 80% ownership by date.
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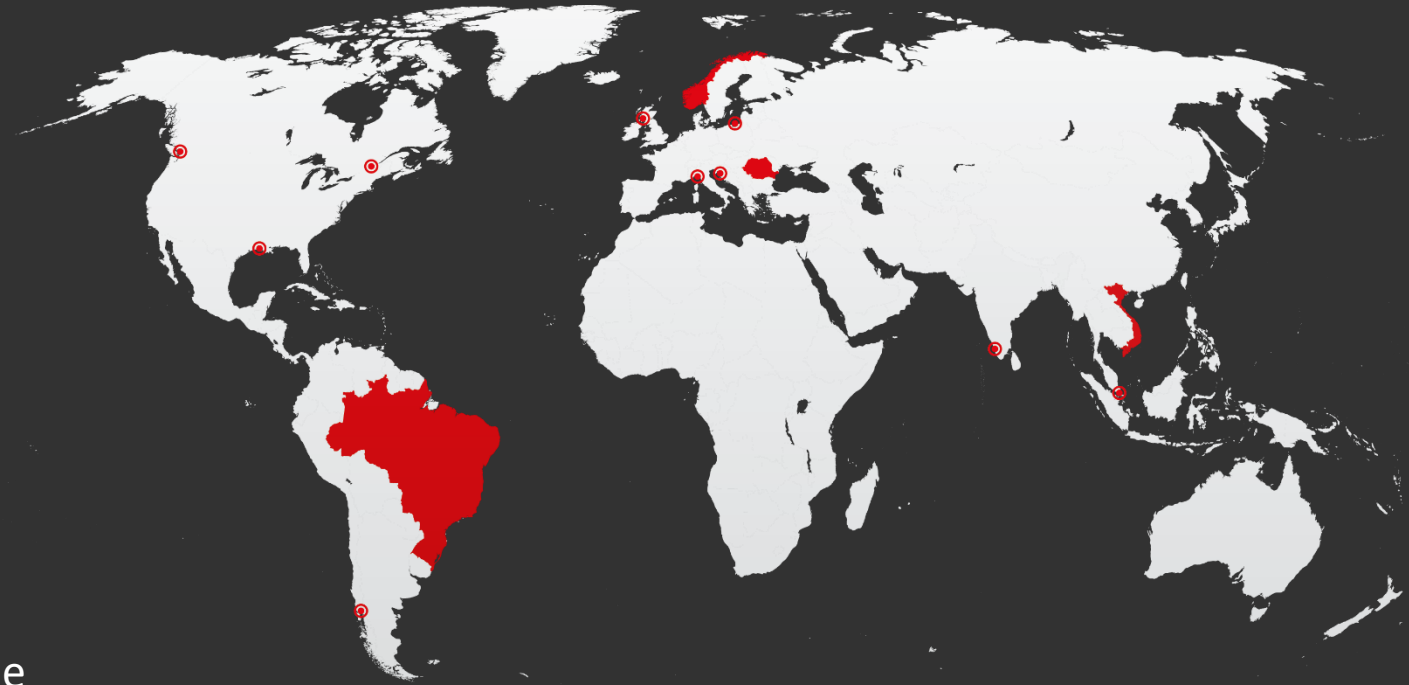


VARD
Approx 9 000 employees
worldwide



FINCANTIERI
Approx 10 000 employees
worldwide

VARD global operations



9 Shipyards worldwide

Norway



Vard Aukra
Vard Brattvaag
Vard Brevik
Vard Langsten
Vard Søviknes

Brazil



Vard Promar

Romania



Vard Braila
Vard Tulcea

Vietnam



Vard Vung Tau

VARD is present in Norway, Romania, Vietnam, Brazil, Croatia, Italy, UK, Poland, Canada, US, India, Chile and Singapore with various entities supporting the shipbuilding process.

VARD Shipyards



Vard Aukra



Vard Brattvaag



Vard Brevik



Vard Langsten



Vard Sjøviknes



Vard Braila



Vard Tulcea



Vard Vung Tau



Vard Promar

VARD Competence



Shipbuilding



Ship design



Integrated electrical solutions



Pipesystems



Accommodation and interior



Deck equipment



VARD Design head quarter – Ålesund Norway


VARD Design

We develop designs for both standard vessel types and special vessels, tailor made to specific client requirements and operations.



 **Employees**
95 + 20

 **Established**
2000

 **Located**
Ålesund, Norway

197 **Total deliveries**
Ship designs within the VARD series

 **31** designs delivered to other shipyards
166 designs delivered to VARD shipyards

VARD Design - Research and development

- In close cooperation with customers and leading research communities
- Involved in several extensive R&D programs
- Testing new ideas and technologies
- Improve cost efficiency of the ship and its operations



VARD - Concept Vessel

Innovative designs

With a continuous focus on R&D,
VARD presents a step forward to the future at sea.

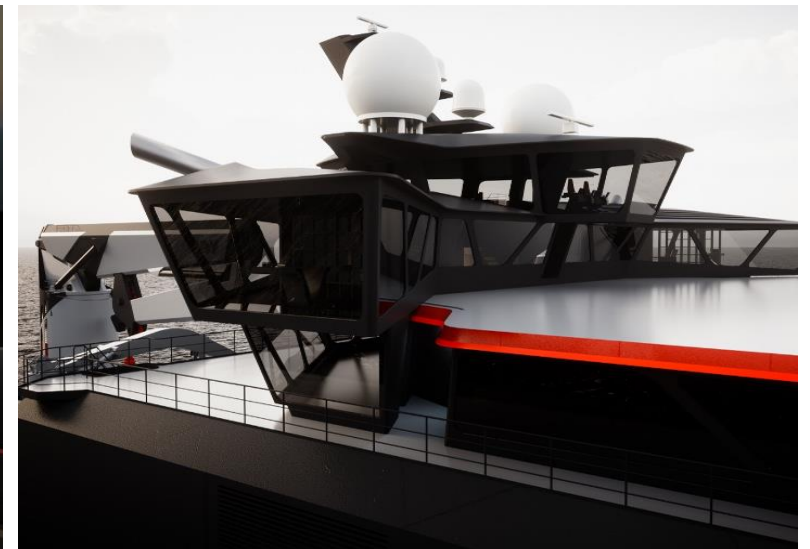


VARD - Concept Vessel

Exterior and bridge design

Navigation and Operation bridge systems

- Improved user interface for vessel handling and operations. Sea Q-Bridge
- Improved facilities and logistic for effective and safe operations.

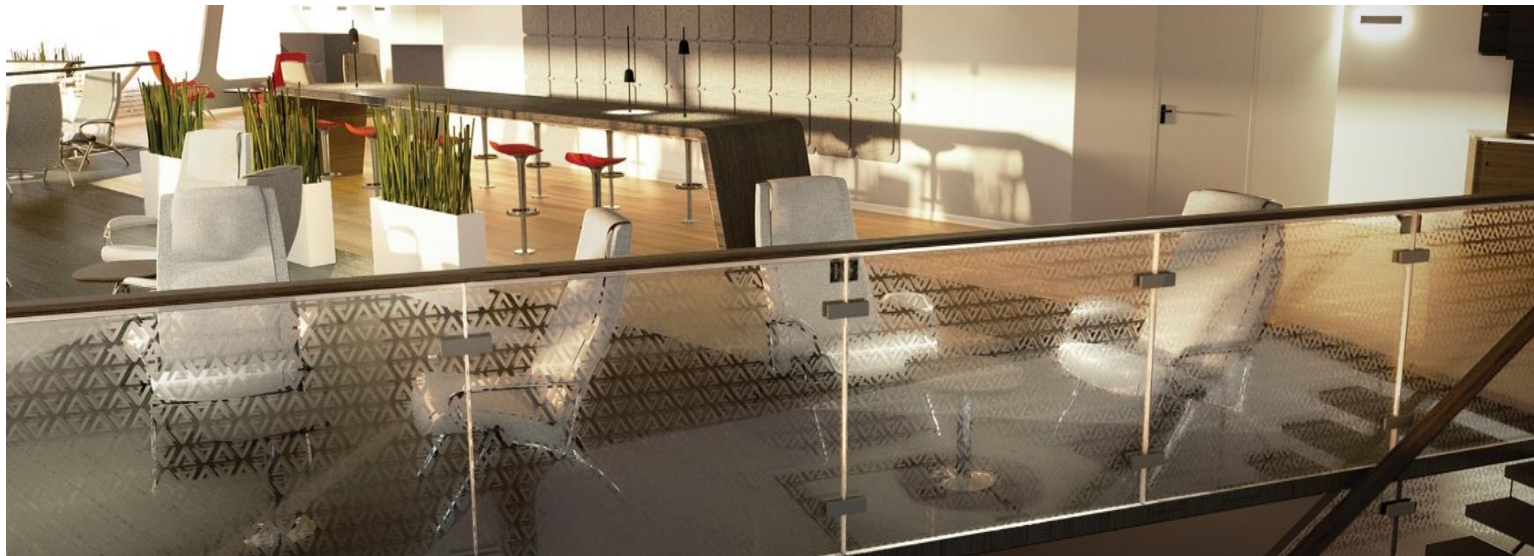


VARD - Concept Vessel

Life on board – your “Home away from Home”

New approach to public and private spaces in the accommodation

- Wayfinding system – Logistics and Safety
 - New cabin solutions and interior designs
 - Integrated solutions for links to the “daily” life at home.
- To improve the comfort and quality of life away from home



VARD - Concept Operations

MPSV – Multi Purpose Supply Vessel

Improved field support in remote and harsh environments

Crew transport

- Focus on HSE, life saving , comfort
- High Speed 25 knots in comfort
- Walk to work

PSV Capacities

- Bulk
- Tank + Special Product
- Large cargo deck

Field support functions

- FRDC Operations – Stand By and Safety
- Oil Recovery Operations, Transrec and Oil boom
- Rescue operations



VARD Design

Vessel Design

THE VARD SERIES IS DIVIDED INTO
A LINE OF STRONG SHIP DESIGNS

VARD 1-SERIES

Platform Supply Vessels



VARD 2-SERIES

Anchor Handling Tug
Supply Vessels



VARD 3-SERIES

Offshore Subsea
Construction Vessels



VARD 4-SERIES

Offshore Renewables



VARD 6-SERIES

Passenger Vessels



VARD 7-SERIES

Offshore Patrol Vessels
by Vard Marine



VARD 8-SERIES

Fisheries and Aquaculture



VARD 9-SERIES

Other Specialized Vessels



VARD Design Vessel Deliveries



Vessels for Offshore and Sub Sea operations

Pipelay and Subsea construction vessels

Deep-water highly competitive operations requiring the highest standards in terms of operability, reliability and performance.



800 | Skandi Africa



154 | Skandi Acergy



811 | Normand Vision



823 | Skandi Acu
824 | Skandi Buzios



730 | Normand Oceanic



703 | Skandi Seven



830 | Normand Maximus



719 | Lewec Connector



EP09 | TBN
EP10 | TBN



Pro 24 | Skandi Niteroi



Pro 23 | Skandi Vitoria

Vessels for arctic operation

VARD has delivered 10 icebreakers since 2002.



Ice breakers



182 | KV Svalbard | 2002



201 | Pacific Endeavour | 2007



202 | Pacific Enterprise | 2007



203 | Pacific Endurance | 2007

Fishing vessels for arctic operation



The vessel is specially developed for sustainable fishing operations in Antarctica. Delivery scheduled 4Q 2018.

Ice classed trawlers



187 | Atlantic Enterprise | Clearwater | 2002



192 | Finnur Friði | Krossbrekka | 2003



772 | Hopen | Remøy Fiskeriselskap | 2013



788 | Gadus Poseidon | Havfisk | 2013



789 | Gadus Njord | Havfisk | 2013



790 | Gadus Neptun | Havfisk | 2014

New Challenges !

Down-Turn in the offshore market

- We all experienced the global decrease in the oil price.
- Investments in vessels for the Oil and Gas industry sunk to zero.
- The demand for VARD`s core and volume products, stopped immediately.

Up-Turn in the Cruise market

- The investments in the cruise market has been high in general in the past years.
- Yard slots for even more newbuilding projects have become a challenge.
- The Expedition Cruise market started to be interesting investments, and the need for an upgrade and expansion for this segment arise.

VARD - Fincantieri – Challenges

VARD

- In search for projects
- Yard slots available
- Design capacity available

Fincantieri

- Clients in search for new tonnage.
- No design capacity or yard slots available.
- The new segment of smaller Expedition Cruise Vessels did not suit Fincantieri's systems.

VARD – Fincantieri – Solution

By working close together we could solve both our challenges.

- Increased capacity for yard slots in the segment for the Expedition Cruise Market, vessels up to approx. 180 m.
- Resources for design capacity available.
- Technology exchange:
 - Fincantieri`s experience as the worlds largest cruise vessel designers and builders were made available.
 - Taking advantage of the knowledge from VARD`s R&D projects.
 - Bringing VARD`s technology from the Oil & Gas industries complex systems into the cruise design.
 - VARD`s experience for vessel design and operations for arctic and harsh environments, made available.
- Result:
 - Fincantieri able to serve their long term client-cooperation and their new projects.
 - VARD to be in position for projects and tenders requiring a cruise reference list.

Vard Group

So, how did VARD handle the new world of Expedition Cruise Vessel design and building.

VARD 6 08

4 + 2 off - Luxury ice-classed Expedition Cruise Vessels for PONANT.



Main particulars				High class accommodation					
Length overall	130 m	Breadth moulded	18 m	Cruise speed	15 knots	Passengers	180	Crew	110

VARD 6 08



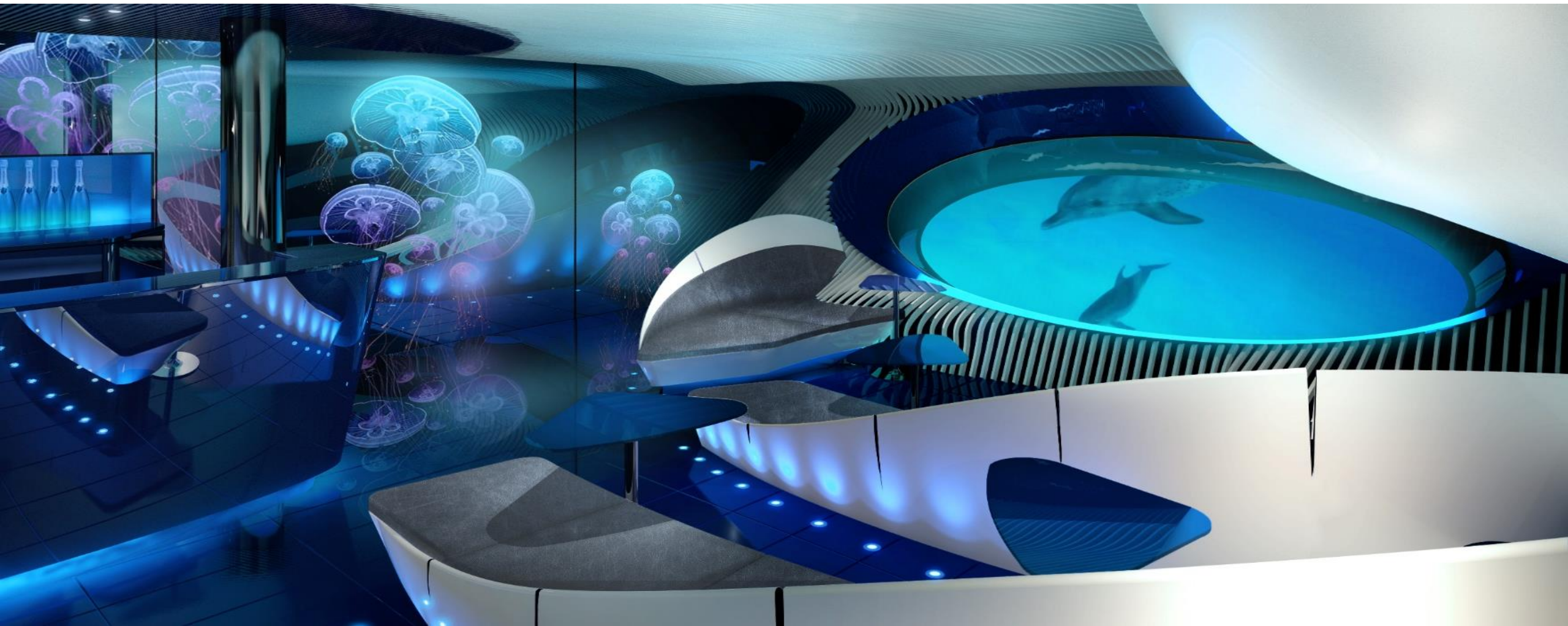
JEAN —
— PHILIPPE
NUEL

VARD 6 08



JEAN —
— PHILIPPE
NUEL

VARD 6 08



Flamant Interior Design - Interior Design

VARD 6 07

2 off - Luxury Expedition Cruise Vessels for Hapag-Lloyd Cruises



Main particulars				High class accommodation					
Length overall	138 m	Breadth moulded	22 m	Max. draft midship	5.6 m	Passengers	240	Crew	192

VARD 6 16

1 off - Research Expedition Vessel - REV



Main particulars				High class accommodation					
Length overall	182 m	Breadth moulded	22.0 m	Max. draft midship	5.4 m	Passengers	Up to 36	Crew	54

VARD 6 16

REV - Research Expedition Vessel



The unique Crossover Vessel – Research and Exclusive Public Areas

- The Research and Expedition Vessel
 - Sub Sea Equipment
 - Crane and Diving systems
 - Fishery research equipment.
- The Exclusive Public areas
 - Exclusive hotel
 - Restaurants and Lecture rooms
 - Pools and Spa.

VARD 6 17

1 off - Luxury Icebreaking Expedition Vessel for Ponant

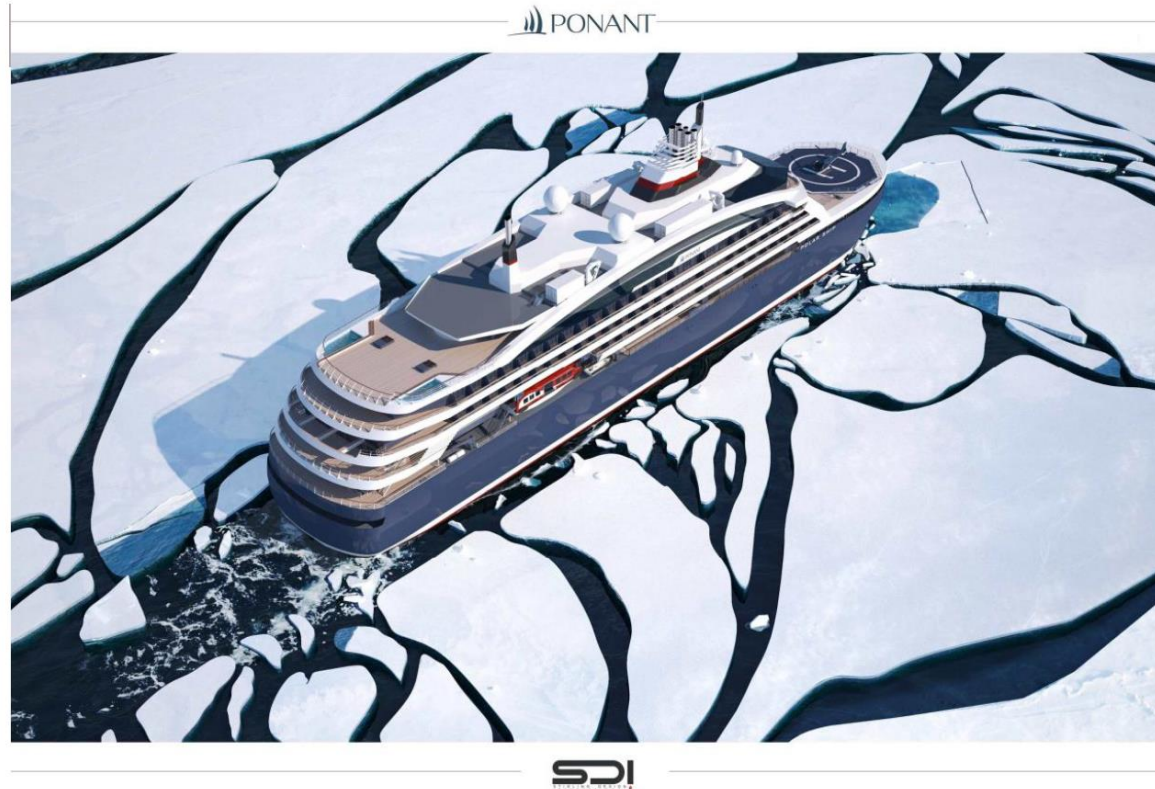
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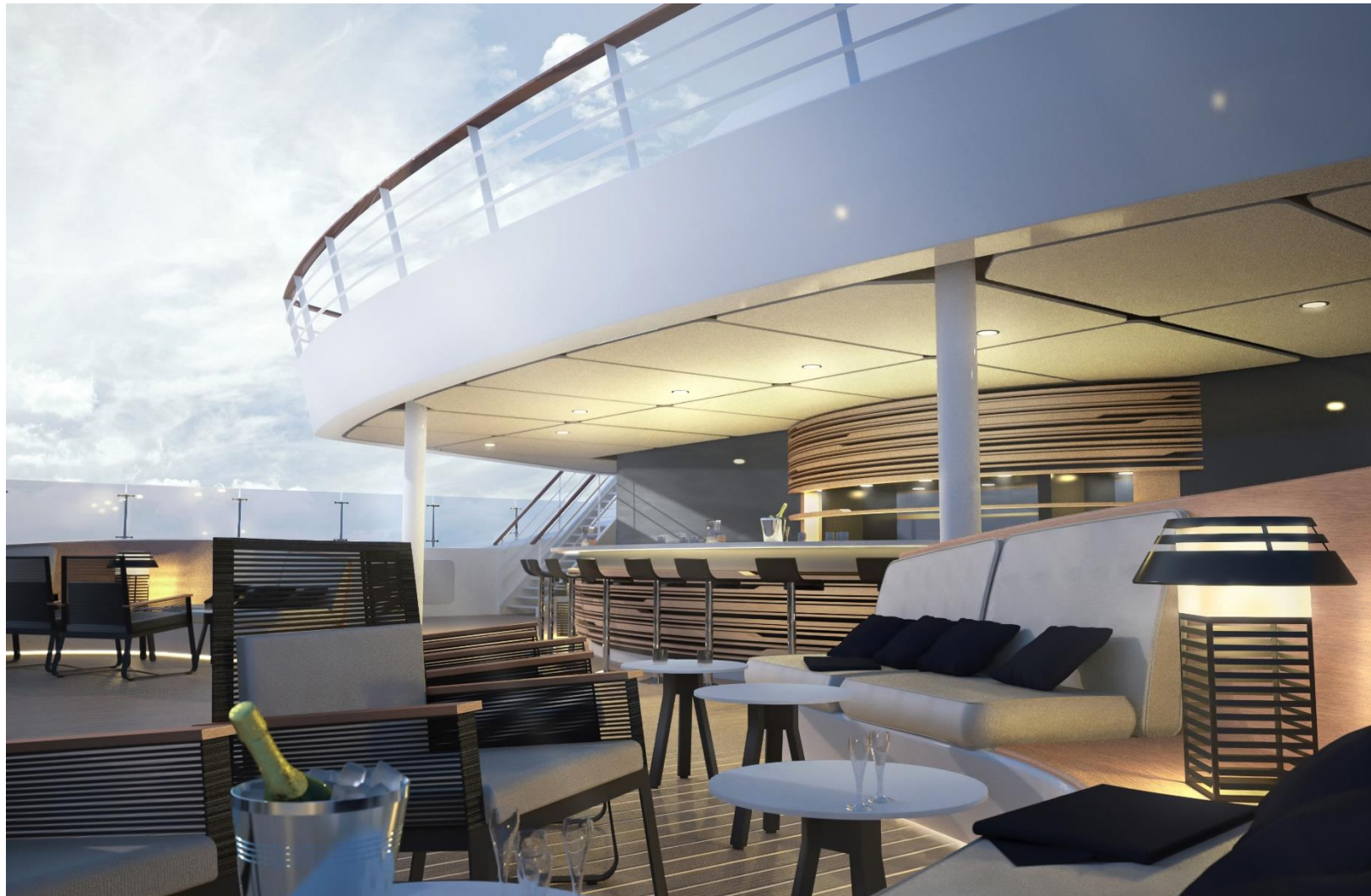
VESSEL SPECIFICATIONS		
Length, over all, about	150.0	m
Length, design wl, about	143.8	m
Breadth	28.3	m
Draught, design open water	9.5	m
Draught, design ice	10.0	m
Draught, scantling	10.2	m
Depth to main deck	19.4	m
Depth to bulkhead deck	13.2	m
Passengers	270	
Crew	180	
LSA	450	
GROSS TONNAGE	30 400	
Propelling engine ABB (to confirm)	2 POD of 17MW	34 MW
Motor Diesel dual fuel WARTSILA (to confirm)	2x 10V31	2x 5500 KW
	4x 14V31	4x 7700 KW
	TOTAL	41 800 KW

VARD 6 17



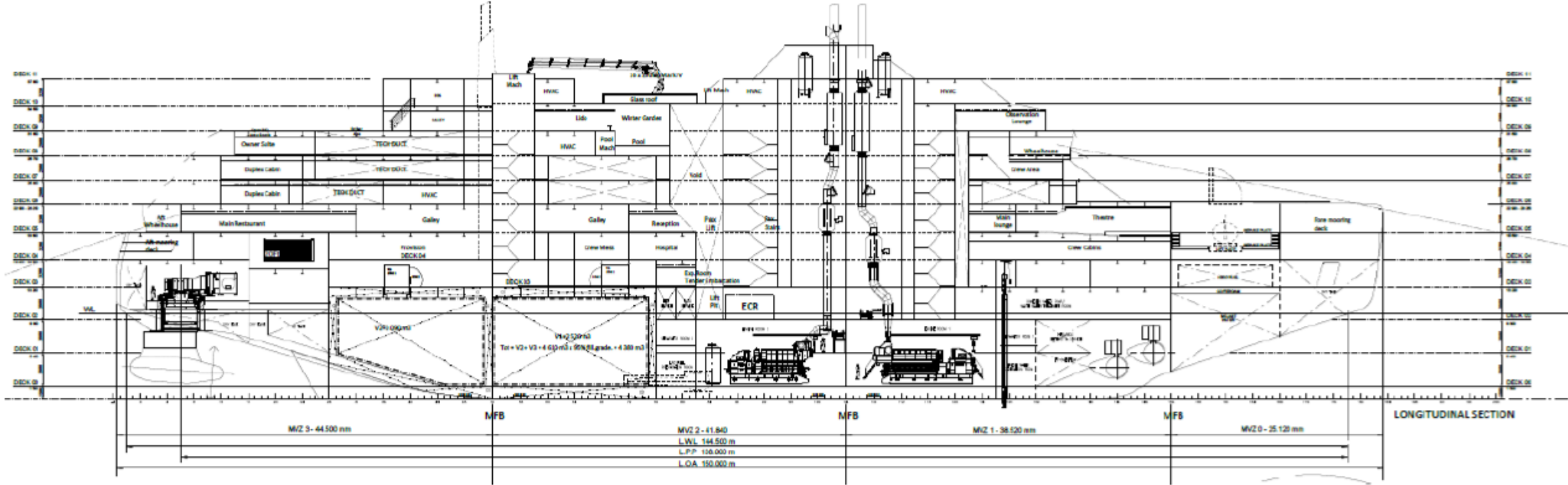
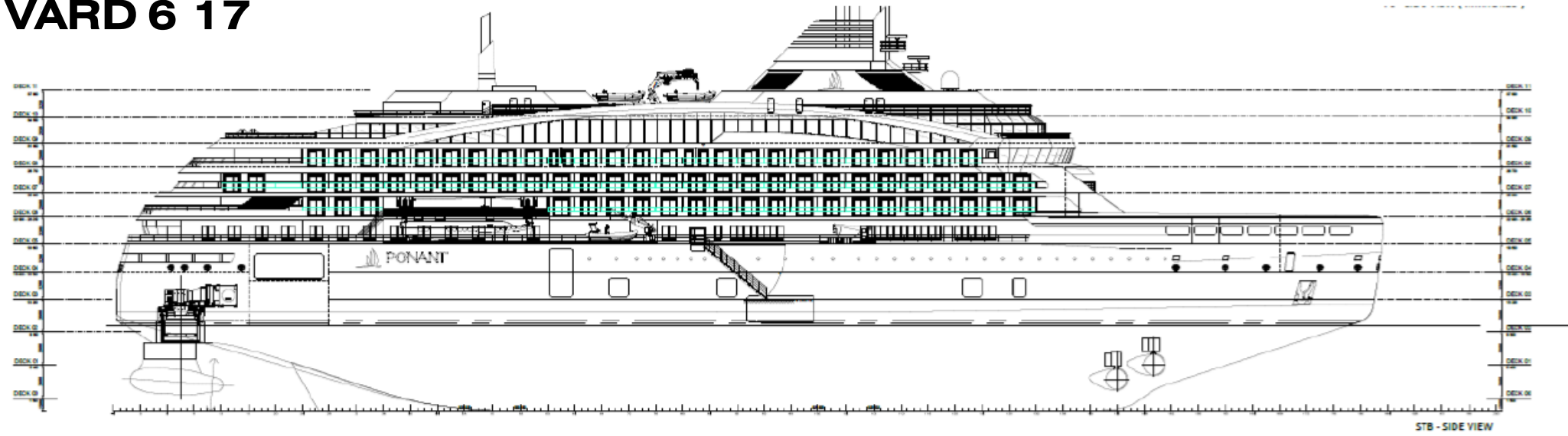
SOME FEATURES:

- PC2 Class vessel – Bringing passengers to the North Pole
- 4.500 m3 LNG fuel capacity in two GTT tank systems
- 2 off Helicopters, stored in hangar with lift and handling system
- Tender boats and embarking systems.
- Luxury cabins in different categories
- Outdoor and indoor pools and spa areas
- Restaurants, lecture halls and theatre



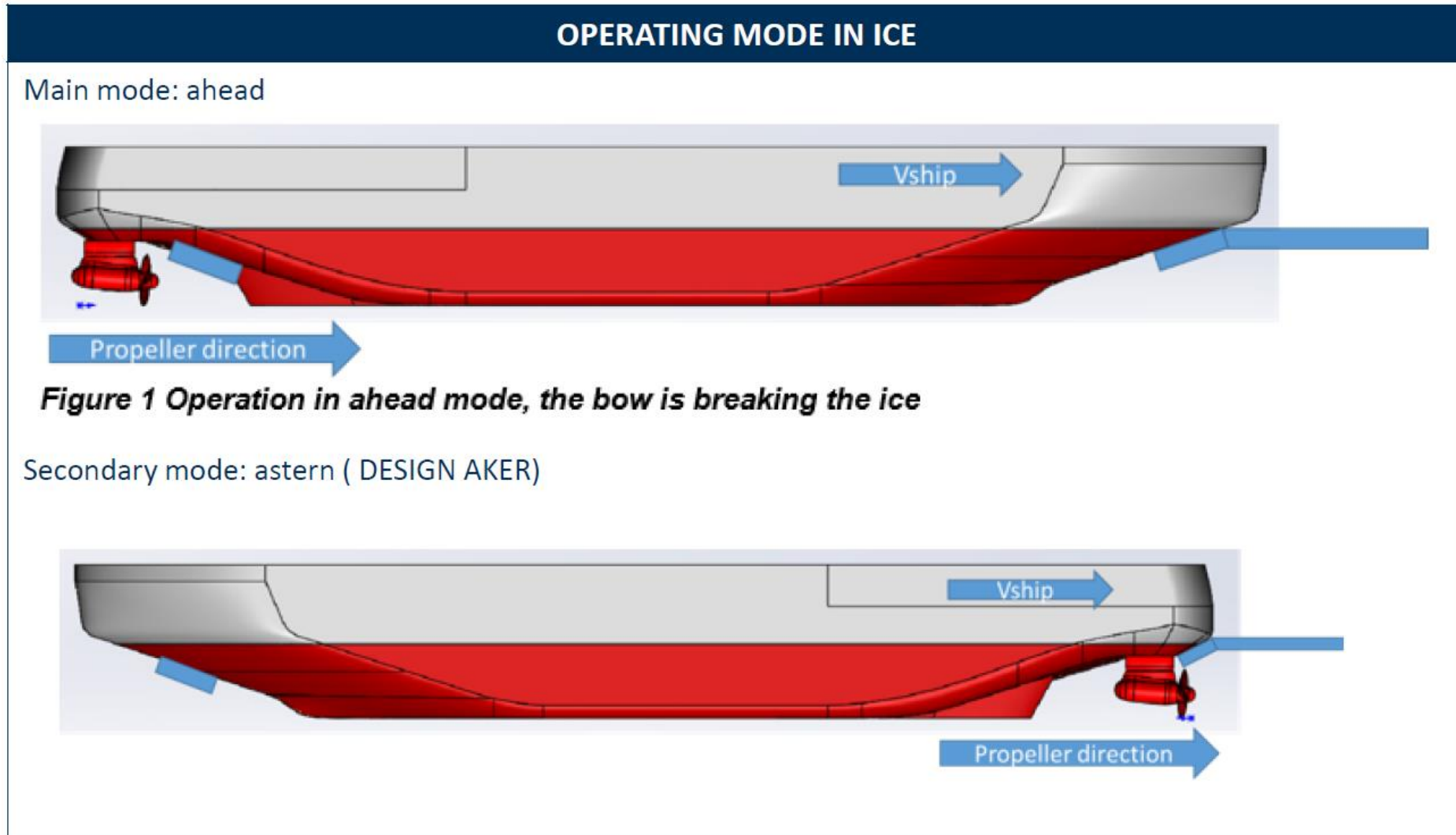
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— PHILIPPE
NUEL

VARD 6 17



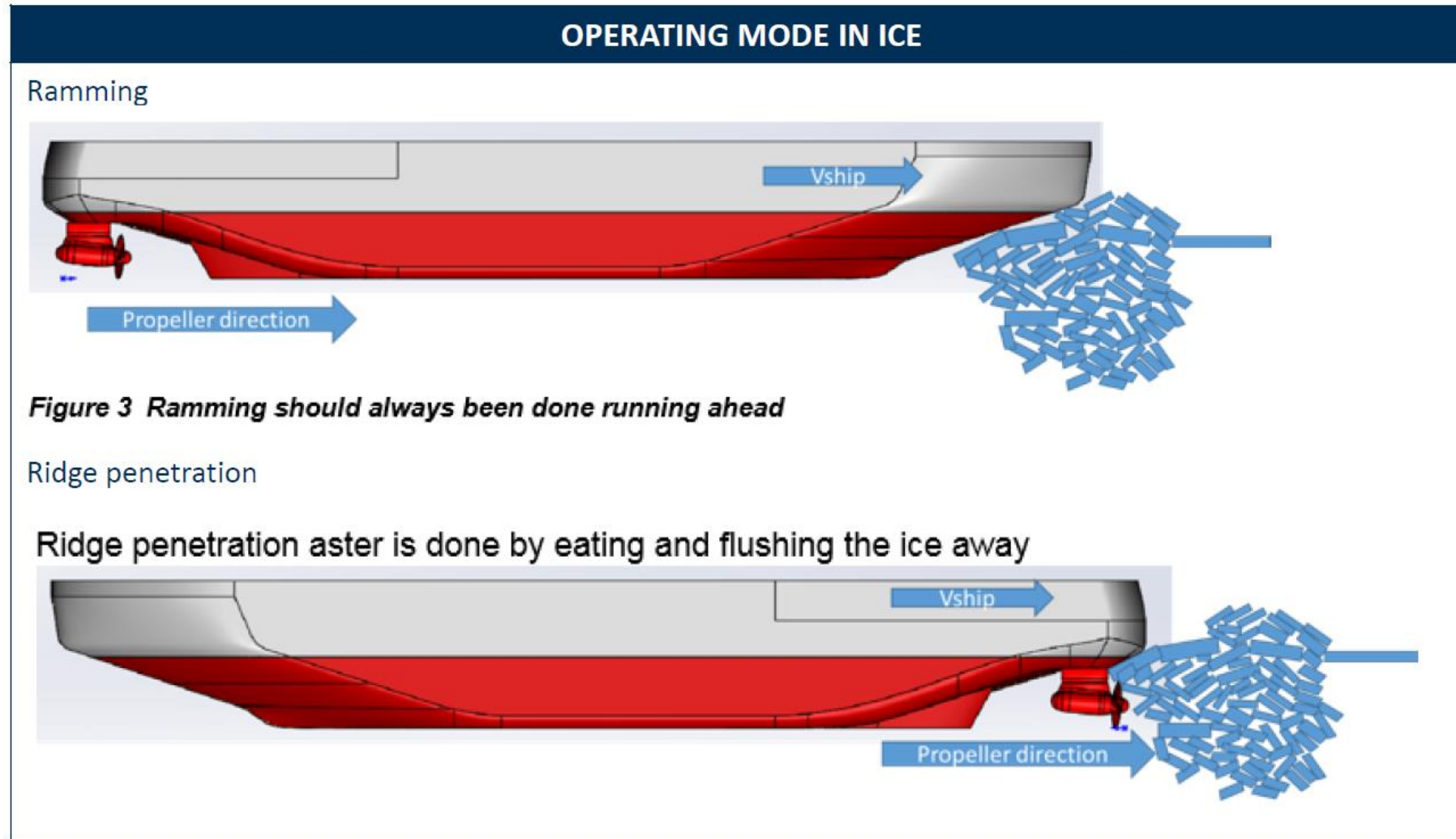
VARD 6 17

VARD 6 17 - ICEBREAKING EXPEDITION VESSEL – ICE OPERATION



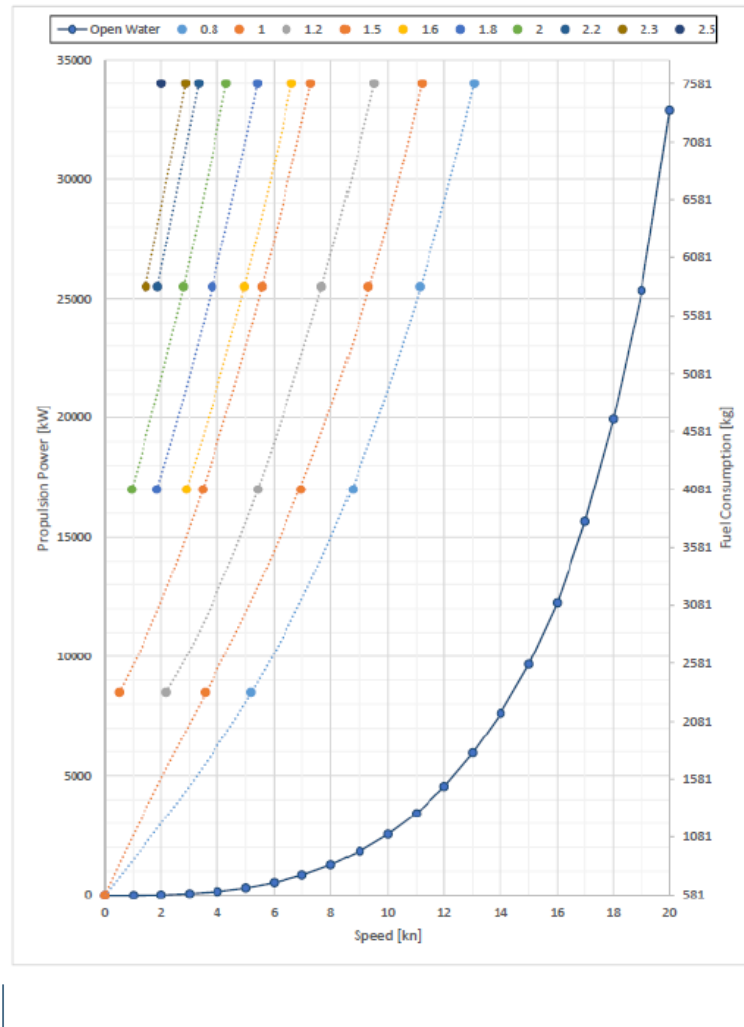
VARD 6 17

VARD 6 17 - ICEBREAKING EXPEDITION VESSEL – ICE OPERATION



VARD 6 17

VARD 6 17 - ICEBREAKING EXPEDITION VESSEL – ICE OPERATION – SPEC. REQUIREMENTS



The Vessel shall have the following performance at the icebreaking draught and in deep water in ice with maximum continuous propulsion power:

- 2 knots average speed in 2.4 m thick intact level ice of flexural strength of 700 kPa ahead
- 7 knots average speed in 1.5 m thick intact level ice of flexural strength of 700 kPa ahead
- 2 knots average speed in 1.8 m thick intact level ice of flexural strength of 700 kPa astern

At half propulsion power a speed of approx. 2 knots can be achieved in 1.6 m thick intact level ice of flexural strength of 500 kPa.

The vessel should be able to penetrate a 15 m ridge running astern without becoming stuck.

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THANKS FOR YOUR ATTENTION !