

V E S S E L M S V S P E C I F I C A T I O N

BOTNICA



ARCTIA  OFFSHORE



ARCTIA OFFSHORE – POWER AT SEA

Globally unique multipurpose icebreakers – Botnica, Fennica and Nordica – are well-equipped and suited for demanding offshore work which requires a high degree of manoeuvrability and accuracy. All three are excellent vessels for ice management tasks in arctic areas.

All of the operations do not, however, take place in the North Sea, Baltic Sea or arctic regions. Vessels sailing under the Arctia flag have also worked in the Gulf of Mexico, West Africa and in the Mediterranean Sea.

Our expertise is founded on an experienced staff and specialised vessels. These two are a strong foundation that enables us to offer first class services to our customers.

Arctia Offshore is a part of Arctia Shipping Group, a specialised shipping company offering icebreaking, ice management, offshore services and marine construction using multipurpose icebreakers and conventional icebreakers. We also offer oil-spill response and ferry services.

Arctia Shipping's fleet consists of variety of vessels ranging from small ferries to multi-purpose

- icebreakers:
- 5 conventional icebreakers
 - 3 multipurpose icebreakers
 - 11 ferries.

MSV BOTNICA SHORT VESSEL DESCRIPTION

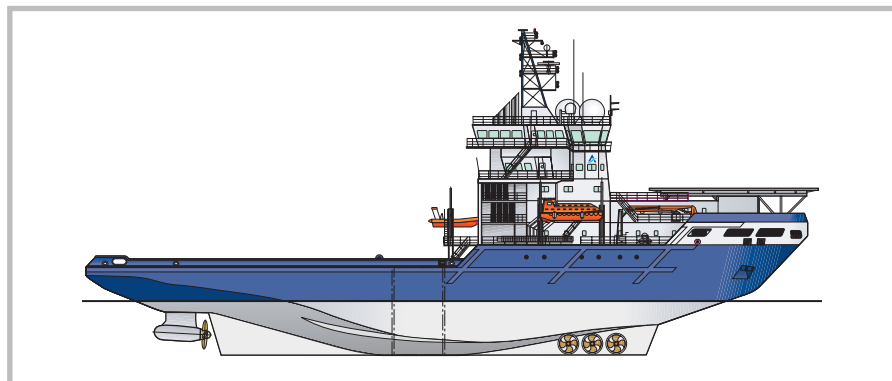
The Botnica is a multifunctional vessel based on a modified icebreaker design with diesel-electric propulsion.

The vessel is designed to carry out offshore installation tasks and can be equipped for laying pipes, cables and umbilicals. The optional 160T SWL crane is well suited for deploying trenching machines and subsea construction.

With the main components such as winches and cranes already installed, a change of function can be achieved rapidly. Botnica meets all the stringent rules and regulations for offshore work.

ICEBREAKING

The Botnica is a part of Arctia Offshore's icebreaker fleet, one of the most powerful in the world. Icebreaking services include ice management, assistance, towing, securing vessel traffic safety, and traffic control for vessels proceeding in icy conditions.



VESSEL DETAILS

IMO No.	9165877
Call Sign	OJAK
MMSI	230904000
Type of Vessel	Ice Breaker & Multipurpose Support
Flag State	Finland
Port of Registry	Helsinki
Owners	Arctia Offshore
Built	1998
Lightweight	5.880 T
Deadweight (approx.)	2.850 T
Displacement	Variable Ton, Depending on loading condition
LOA	97.3 m
LWL	79.1 m
Breadth Moulded	24.3 m
Depth Moulded	11.7 m
Draught (Scantling)	7.8 / 8.5 m

CLASSIFICATION

DNV	1A1 ICE -10 Icebreaker SF HELDK RPSPS E0 DYNPOSAUTRO DK (+) HL (1.8)
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CAPACITIES AND CONSUMABLES

Fuel Oil	1048.9 m ³ DO
Lubricating Oil	20 m ³
Fresh Water	270 m ³
Water Ballast	2200 m ³
F.W. Making Capability	25 T / day
Consumables@ 8.4 m Draught:	
Type of Fuel	Marine Diesel Oil
Fuel Consumption@Full Speed	abt. 50 T / day
Fuel Consumption@Service Speed	abt. 25-30 T / day (12 kn)
Fuel Consumption@DP	abt. 10-15 T / day
Fuel Consumption@Harbour	abt. 4 T / day
Duration times on DP depend on distance and speed of transit, to location.	

ICE BREAKING CAPABILITIES

Maximum ice thickness	where vessel is capable to maintain speed is 1.2 m
Speed	of 8 knots at 0.8 m level ice

PROPULSION

Number	2
Make	ABB Azipod
Type	Azipod
Rating	2 x 5000 kW / Total 10 MW

BOW THRUSTERS

Number	3
Make	Brunvoll
Type	FU-80-LTC-2000
Power	3 x 1150 kW
Propeller Type	Variable Pitch

SWITCHBOARDS

Make	ABB Industries
Type	MH 12 M
Transformers	2 x 2000 kVA / 3300 / 400 V / 50 Hz
	2 x 200 kVA / 400 / 230 V / 50 Hz

DIESEL (MAIN)

Number	12
Make	Caterpillar
Type	3512 B / 1250 kW / 1500 rpm

GENERATOR (MAIN)

Number	6
Make	ABB Industries
Type	AMG 560 4 L
Rating	2850 kVA / 3.3 kV / 50 Hz

GENERATORS (EMERGENCY)

Diesel	
Number	1
Make	Caterpillar
Type	3406
Rating	230 kW / 1500 rpm
Generator	
Type	SR 4B
Rating	250 kVA / 400 V / 50 Hz

BOLLARD PULL

Bollard pull	117 tonnes
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ANTIHEELING/STABILIZER

INTERING tank	518 m ³
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DYNAMIC POSITIONING

The vessel is equipped with a Simrad SDP22 + SPD 12 backup dynamic positioning system including five distribution stand alone 2+3 operator station units controlling the two Azimuth main propellers and the three bow tunnel thrusters.

Classification is DNV under the DynPos AUTRO class, (Dynamic Positioning with Automatic Redundancy). This includes the DP system itself and its power supply plus the vessel's general switchboard and emergency power supply and the mode operation, both in normal and warning / alarm states.



HARDWARE

Type	Simrad SDP 22- SPD 12 backup
Work Station	5 pcs
Portable Terminal	1 pc
Process Stations	13 pcs
ATC console	2 pcs
STC console	2 pcs

REFERENCE SYSTEMS

The DP system consists of and is interfaced to the following equipment:

HiPaP	2 pcs	
MDGPS	4 pcs	DPS116 / 2xDPS132 / DPS232
Taut wire	1 pc	LTW BANDAK MK 8-22
Fanbeam	Optional	
VRS	2 pcs	(Vertical reference unit)
Compasses	3 pcs	1xSea Octans (Fiber optic)
Windsensor	2 pcs	

SOFTWARE

In addition to the standard maker software application.

The vessel is equipped with the following:

Draught compensation	The mathematical model of the vessel will be updated in accordance with the actual draught.
Coordinate selection	The systems is working in UTM, with the possibility to select different coordinate systems.
Alternative Rotation Point	Operator selectable rotation point by using the keypad. A dedicated display page indicates the rotation point coordinates.

BRIDGE EQUIPMENT

THE VESSEL'S INTEGRATED NAVIGATION SYSTEM IS EQUIPPED WITH

Radar	3 pcs Consilium Selesmar MM-950 NAVBAT
Ecdis	2 pcs ECEC1000
DGPS	2 pcs Leica MK10 & Saab R4
Autopilot	2 pcs Furuno FAP-2000 & Simrad
AIS	1 pc Furuno FA-100
Navtex	1 pc JMC NT-900
Echosounder	1 pc Skipper GDS101

SYSTEM PROVIDES

Flexible route planning, steering and monitoring
Continuous calculations of own position
and display on ECDIS
Continuous target tracking by radars and AIS
Continuous target presentation by ECDIS

EXTERNAL COMMUNICATION SYSTEM

COMPRISING

GMDSS - A3 radio station
Telenor SEALINK 2 on Dual band
Inmarsat B & C
Aviation VHF (2 fixed + 3 portables)
Additional VHF/UHF radios

SEARCHLIGHT

The following Xenon remote controlled search lights are provided:
5 x 2000 W (360 dgr)

INTERNAL COMMUNICATION SYSTEM

AUTOMATIC TELEPHONE SYSTEM

The telephone system consists of phone sets.
In addition to the land lines there are mobile cellulars and ship's satellite
communication system connected to the PABX.
All cabins fitted with telephones.

NB! The following numbers are subject to change depending upon current
project and location.
4 pcs outside telephone lines available for Project / Client
Radio / TV cable network
Radio / TV cable network receives terrestrial radio / TV broadcasts as well as
satellite broadcasts, which are further distributed to the ship's cable network
and TV sets.

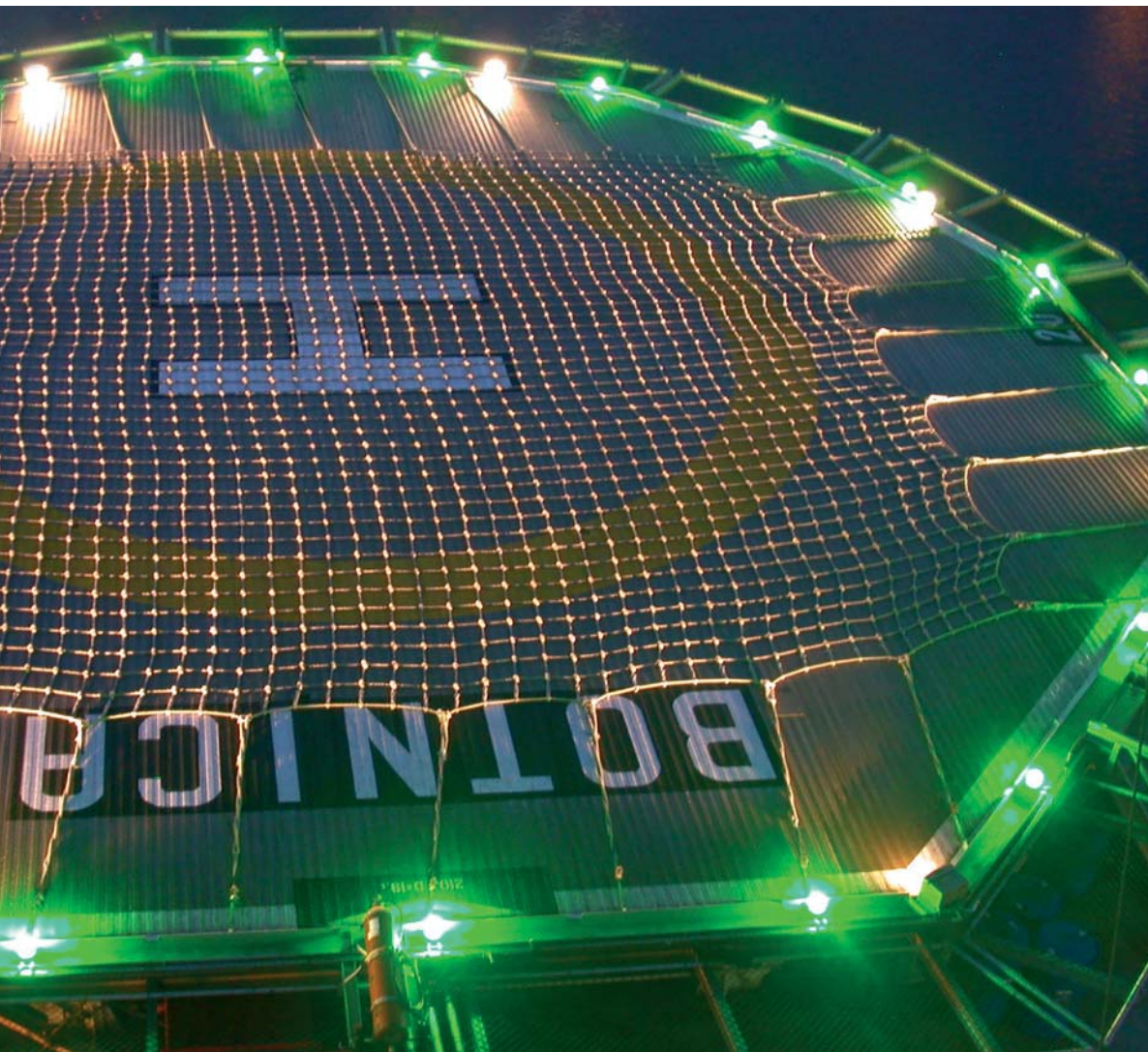
TO SHIP

NorSat / KU-band via Norway (1)	+ 47 5140 7110
NorSat / KU-band via Norway (2)	+ 47 5140 7111
NorSat / KU-band via Finland (1)	+ 358 306 207 900
NorSat / KU-band via Finland (2)	+ 358 306 207 901
NorSat / KU-band via Finland (3)	+ 358 306 207 902
GSM (close to coast only)	+ 358 400 203 876
GSM (close to coast only)	+ 358 40 736 8080
Inmarsat B	+ 870 323 090 412

FAX

NorSat fax / KU-band via Norway	+ 47 5140 7112
NorSat fax / KU-band via Finland	+ 358 306 207 900 ext. 962
GSM fax (close to coast only)	+ 358 401 203 877
Inmarsat B fax	+ 870 323 090 420
Inmarsat C fax	+ 870 423 090 411



**DATA NET (CLIENT)**

The Data Network is a cat. 5 10 / 100 TX Ethernet.
The network is connected to the KU band communication system onboard.

THE NETWORK HAS OUTLETS ON THE FOLLOWING LOCATIONS ONBOARD

Client office	Upper deck
Bridge	
Operation Center	4 th Bridge deck
Owners cabin	3 rd Bridge deck
Aft Deck	
Hospital	3 rd Bridge deck

HELIDECK

Helideck 'D'Value	20 m / 11.2 ton
Rated	EC225 / Super Puma or similar
HMS	1 pc Kongsberg HMS 100

DECK LAYOUT

Air on Deck	12-16 connection points, 500 m ³ / h, 7 bar
Air Receiver	1000 l
Sea and Fresh Water	4 connection points 45 m ³ / h, 4 bar

ELECTRICITY ON DECK

Power Outlets 400V (± 10%) / 50 Hz, rated at 1100 kW
Additional MA-set available, output 440V / 60 Hz, 2 x 160 A, rated at 320 kW
Power Outlets 230 V (± 5%) / 50 Hz, rated at 40 kW
6 pcs 16 A (2 ph)

DECK CRANES

MAIN CRANE

Max single line lift capacity SWL 150 mt on outer lay (full drum)	
a. Lifting capacity	single line arr. SWL 25 mt / 35 m outreach
b. Lifting capacity	single line arr. 150 mt / 10 m outreach
Winch capacity	3000 m
Wire Size	OD Ø 77 mm

Main Hook Active Heave Compensation (AHC) capacity	
Performance	0-75 T single line
Performance	75-150 T single line 50% of above

Aux winch lifting capacity	single line SWL 20 mt / 36 m outreach
Winch capacity	2000 m
Wire Size	OD Ø 24 mm

Aux Hook Active Heave Compensation (AHC) capacity	
Performance	0-10 T single line
Performance	10-20 T single line 50% of above

SECONDARY CRANE (OPTIONAL)

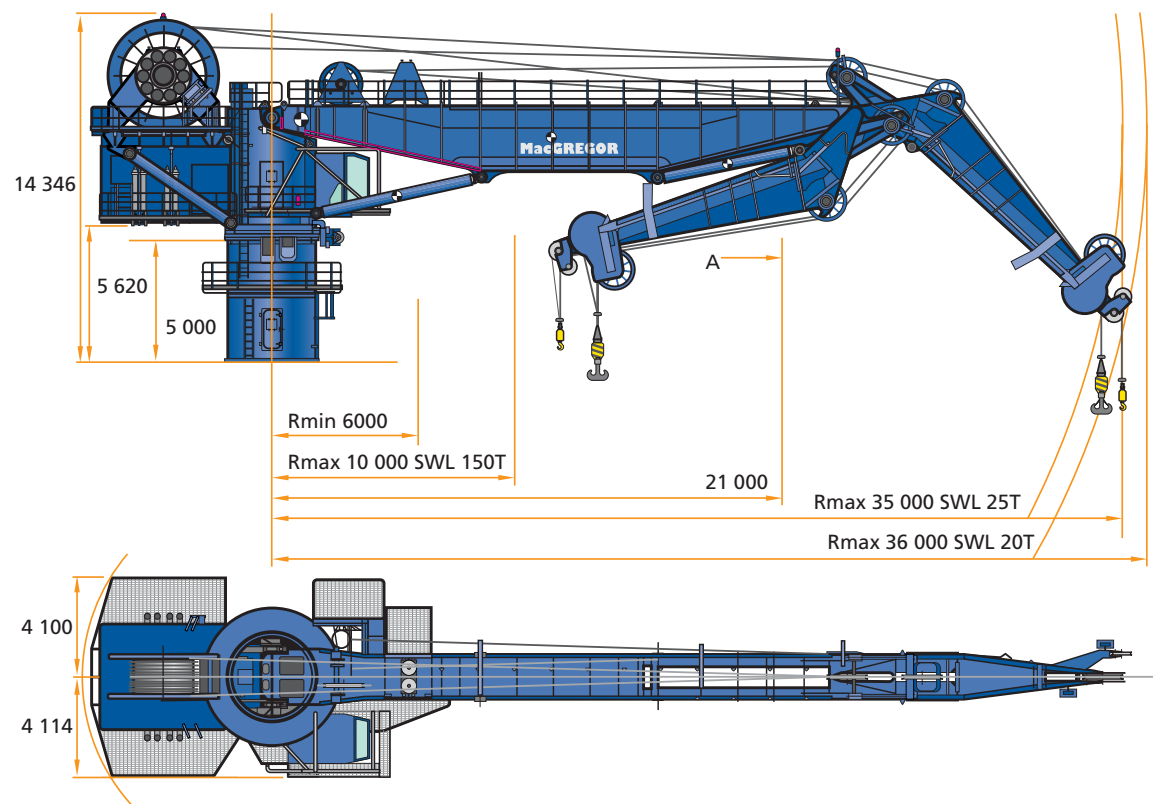
Manufacturer	MacGregor
Main hook	5 T / 15 m
Wire Length	80 m
Wire Size	22 mm
Drum Capacity	100 m

A- FRAME (OPTIONAL)

Safe Working Load	120 T
Clearance between legs	12 m
Hook height	15 m
Working Depth / appx.	300 m

MAIN DIMENSIONS [MAIN CRANE]

Max radius		36 000 SWL 20T
Overall width	W	8 214 [mm]
Height to top of king	H2	14 346 [mm]
Height of pedestal		5 000 [mm]
Boom angle in parked position	1	0 [°]

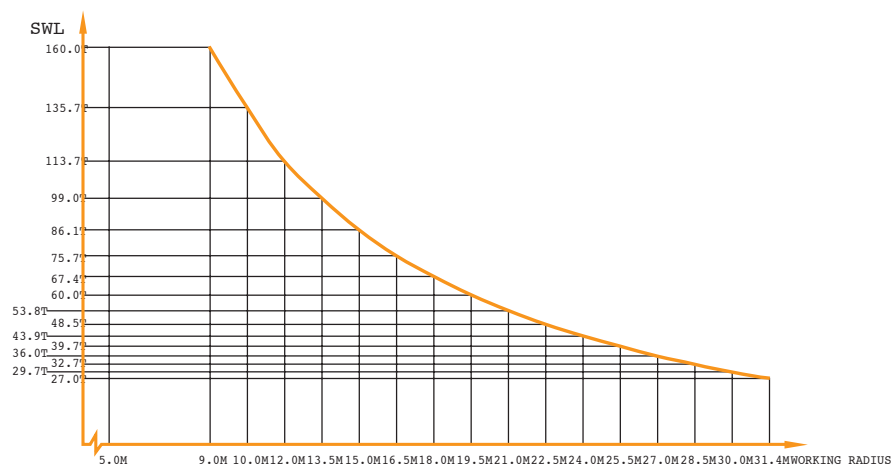


WINCHING CAPACITIES**DECK LOADING**

Deck Area	approx. 1000 m ²
Capacity	10 T / m ²
Moonpool	1 pc
Size	6.5 m x 6.5 m

TOWING**TOWING WINCH**

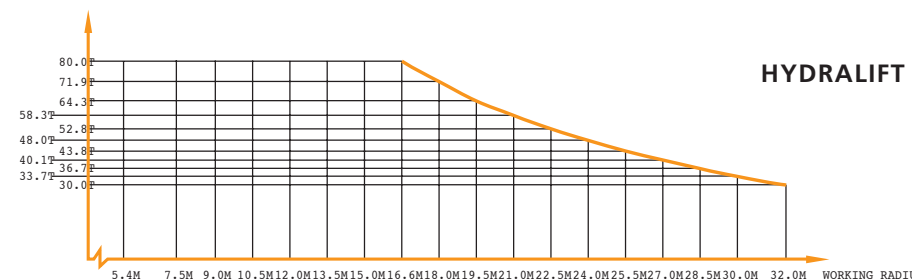
Maker	Aquamaster-Rauma
Type	TW 2100/600 H-S
Capacity	300 m / 64 m
Towing	210 ton max (brake holding)



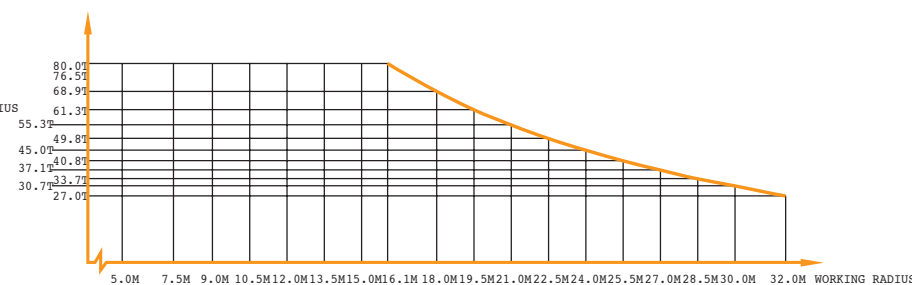
LIFTING CAPACITY OF MAIN WICH WITH 160 TONNE
HOOKBLOCK (WEIGHT 5 TONNE) AT 2 WIREPARTS



LIFTING CAPACITY WITH 10 TONNE
HOOK (WEIGHT 400 KG) AT 1 WIREPART



LIFTING CAPACITY OF MAIN WICH WITH 80 TONNE
SWIVELHOOK (WEIGHT 2.5 TONNE) AT 1 WIREPARTS



LIFTING CAPACITY OF MAIN WICH WITH 160 TONNE
HOOKBLOCK (WEIGHT 5 TONNE) AT 1 WIREPART

ACCOMMODATION

Total Accommodation	72 Persons incl. crew (normally 46 client beds)
Day Room / Mess for client:	
Day room	4 th Bridge deck
Messroom and coffeeshop	Upper deck
Laundry	5 pcs
Gymnasium	2 nd deck
Sauna	2 nd deck
Kiosk	Upper deck
Operation Center	4 th Bridge deck
Client Office	Upper deck
Ship's office / Reception	1 st Bridge deck
Hospital	3 rd Bridge deck



SURVEY FACILITIES

The MSV Botnica has no permanent ROV system on board, but it does have the capability for an ROV system should the project require it.

MANNING

Master	1
Chief Officer / DPO	1
First Officer / DPO	1
Second Officer / DPO jr.	2
Chief Engineer	1
1 st Engineer	2
Electrical Engineer	1
Electrician	1
Deck Repairman	3
Engine Repairman	3
Chief Steward	1
1 st Cook	2
2 nd Cook	2
Catering Assistants	3
Crane tech.	1
Crane ops.	2

Total Marine Crew about 27 persons, however this may change between projects.

LIFE SAVING, FIREALARM AND RESCUE EQUIPMENT

Lifeboats	2 pcs, 72 persons each
Type	CLR-T 8,5
Dimensions	L 8.5 m / B 2.89 m / draught 1.25 m
Weight including Equipment	3700 kg
Engine	Sabb
Regulation	SOLAS 74778 / Amendments 1983 / Chapter III Regulation 41, 44, 45 and 46 / Resolution A689 (17) Part1-No.6 and Part 2-no.5.3
Lifeboat Davit	Davit International D-NPNP.95
Fast Rescue Boat	1 pc, 6 persons, P-side
Type	FRB 700 S (material GRP)
Dimensions	L6.58 m / B 2.23 m / draught 0.88 m
Engine	Volvo Penta / TAMD 31-SOLAS
Speed	20 knots
Regulation	SOLAS1974 Amendments 1983 / Chapter III Resolution A656 (16) MSCSC Circ. 809 / 97
FRBoat Davit	Davit International 12.18.15
Life rafts	6 pcs / 25 persons each
Type	Viking Life -saving DKF
Life raft davit	Davit International
Fire Alarm system	Consilium / Salwico CS3000

DETAILS BELIEVED TO BE CORRECT BUT NOT GUARANTEED.

