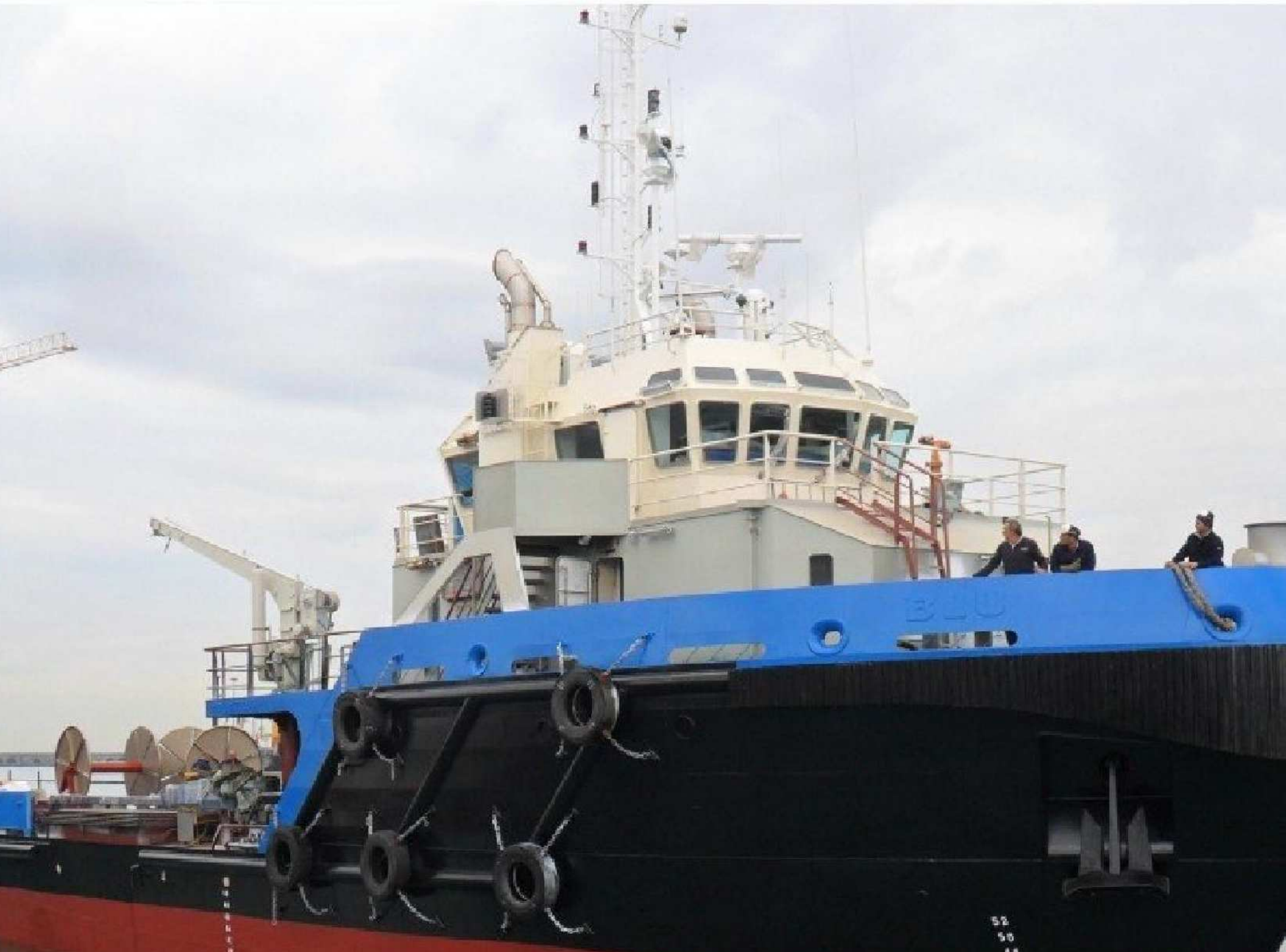
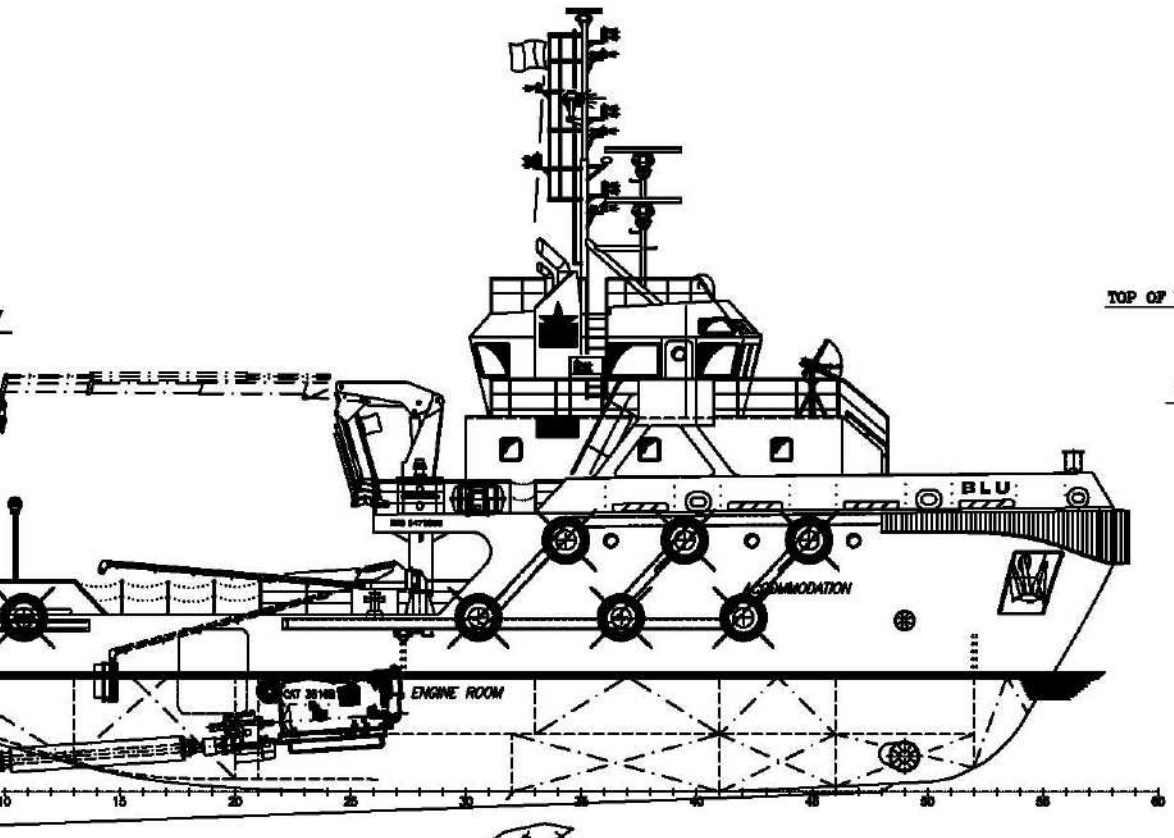
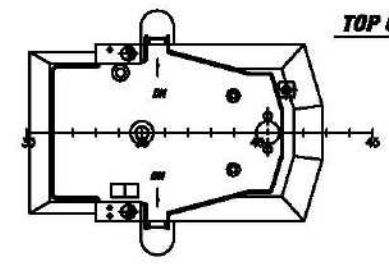
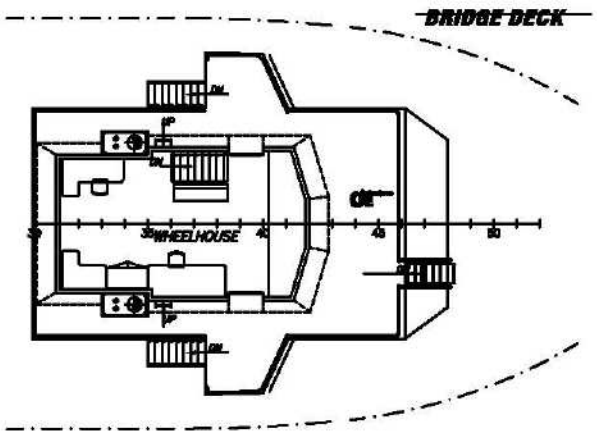
ORV BLU

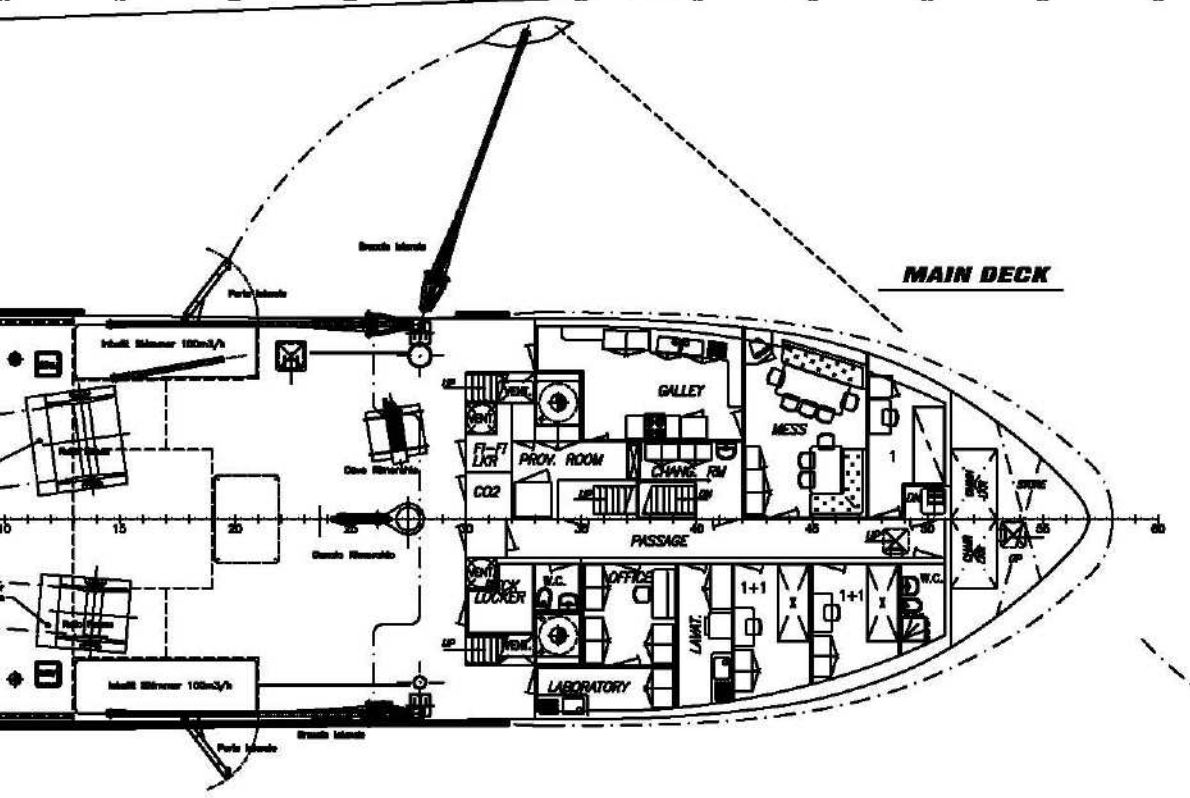
GLOBECO

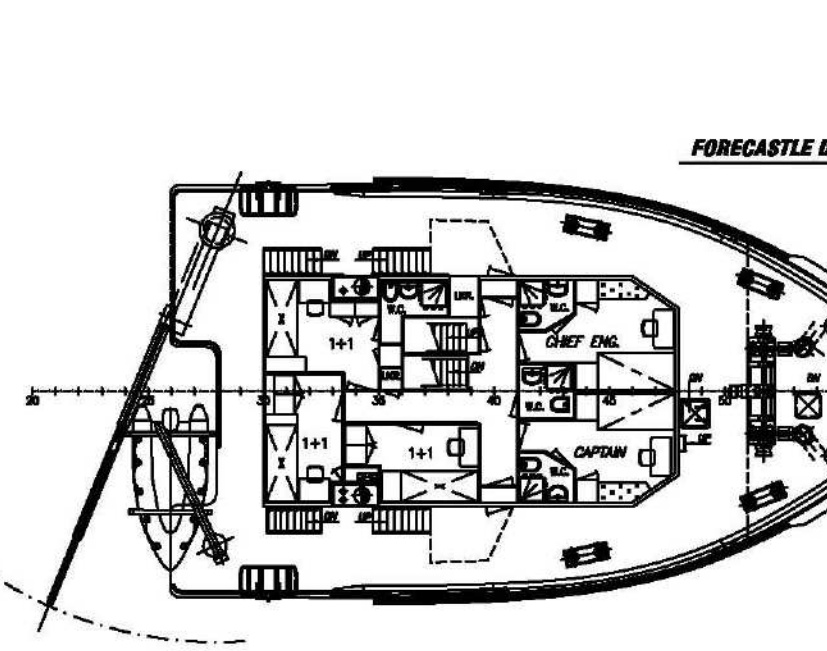


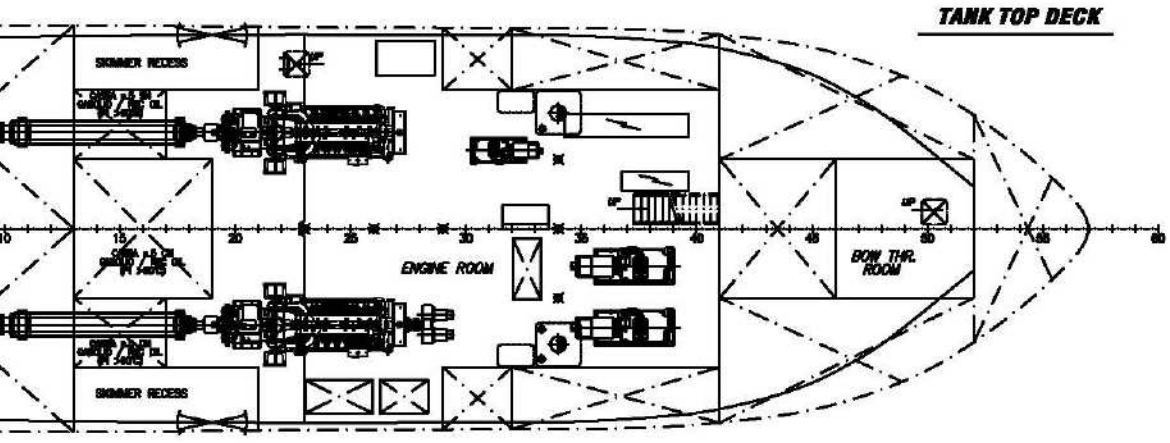












MAIN DATA

Length O.A.	37.70 m
Length B.P.	33.68 m
Breadth mld.	10.60 m
Depth mld.	4.50 m
Max Draft	4.80 m
Design Draft	3.83 m
Gross Tonnage	464 GT
REC–OIL Tank fp<60'	178.6 m3
REC–OIL Tank fp>60'	131.5 m3
Dispersant Tk. Capacity	2.00 m3
Dk Crane Capability	SWL 3.0t at 10.0m
Clear Deck Area	ca. 160.0 m2
Load on Deck max	200.0 t
Main Engine Power	2x1771 Kw
Bollard Pull	> 60.00 Tbp
Max Speed	> 13.00 Kn
Accommodation	13 p

Class: C✠ Hull ✠ Mach, Supply vessel, (TPF 60)
Oil Recovery Ship, AUT–UMS, Unrestr. Navigation

REV.	
14	Aggiornato
13	Emissione per costr.

PROJECT:
ORV 38

GENERAL A


SERVICE CRANE
DN
SIDE DOOR

INFLATABLE SWEEPING ARM

Side Door

SKIMMER INBUILT

SUCTION RECESS

OIL BOOM REEL

Towing Wire reel

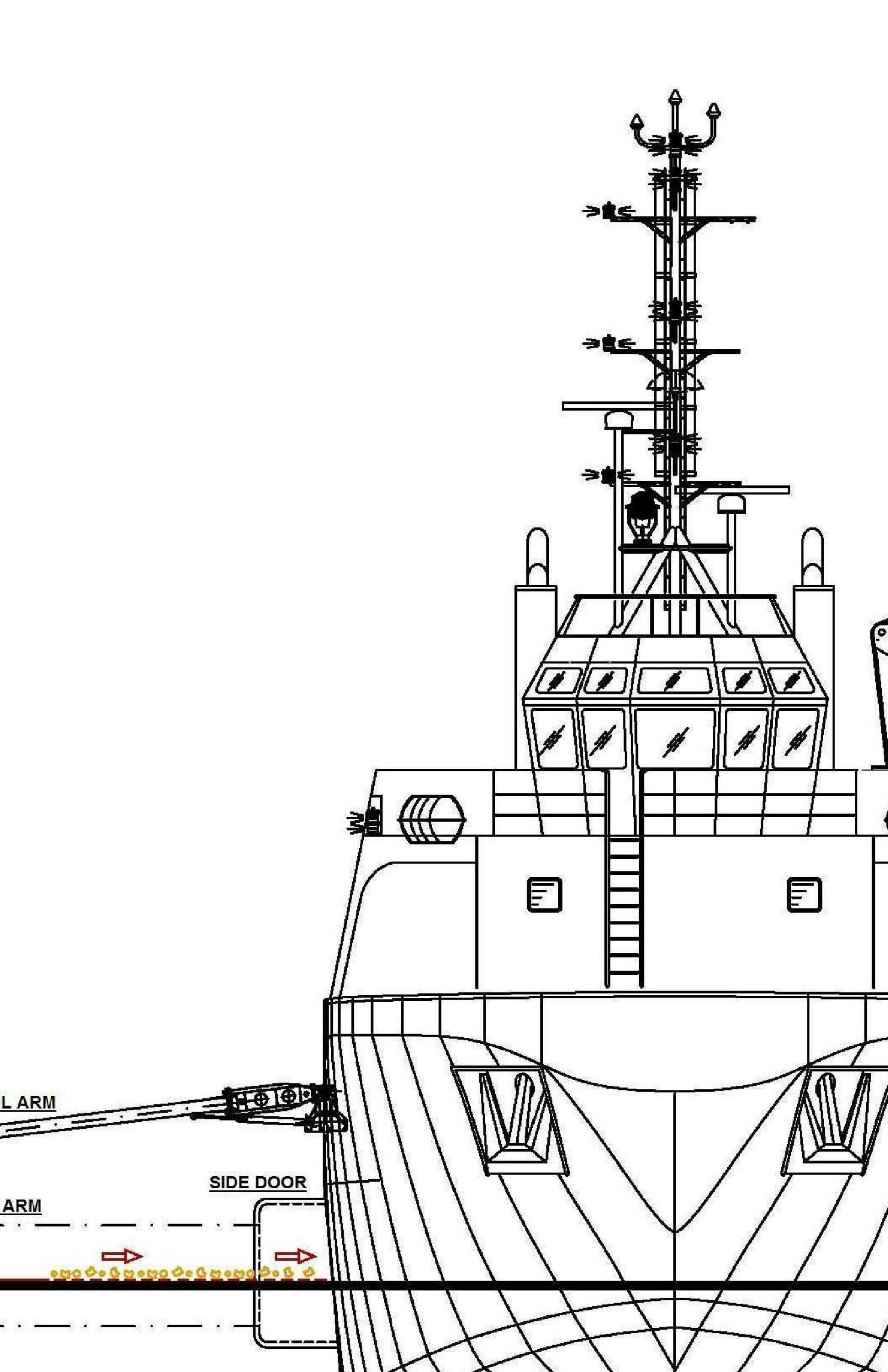
Towing Hook

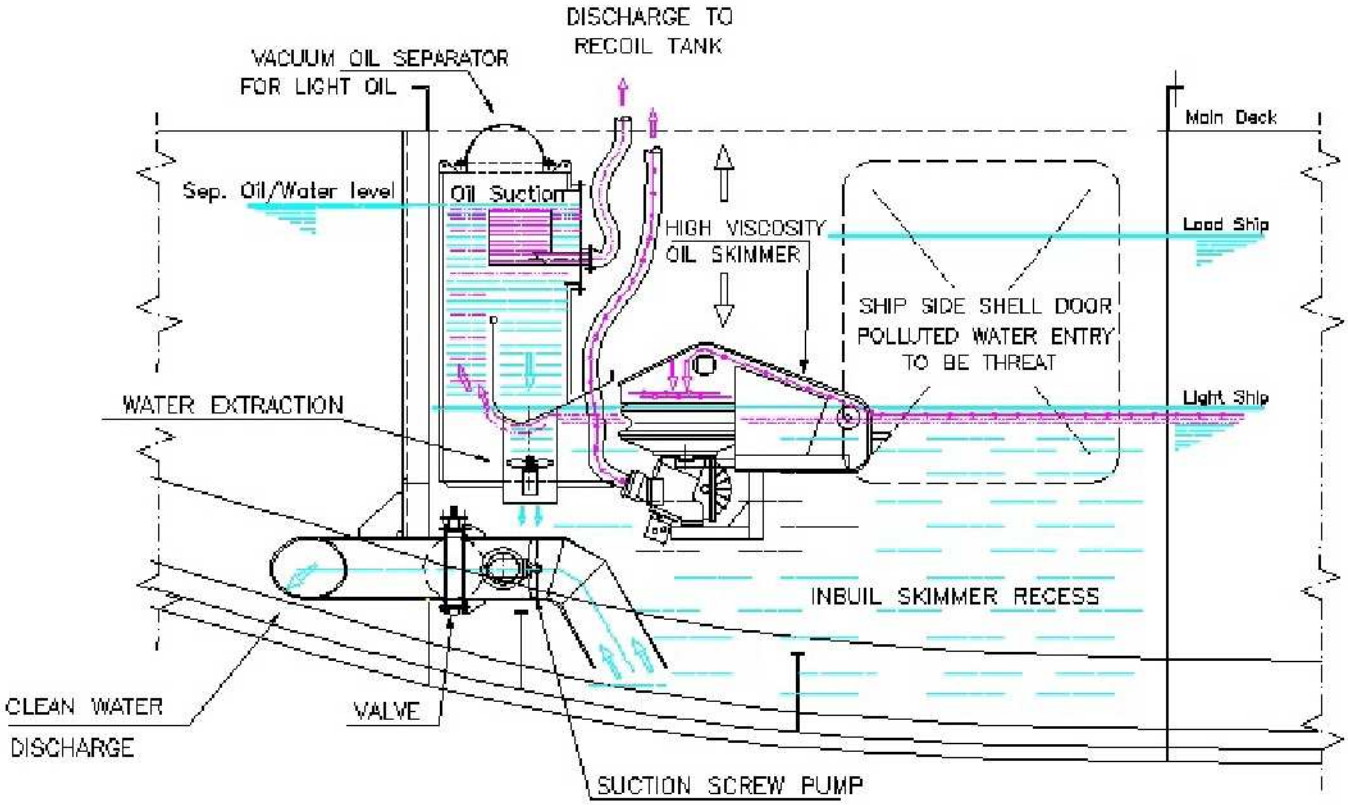
OIL BOOM REEL

SUCTION RECESS

SKIMMER INBUILT

Side Door


L ARM
SIDE DOOR
ARM



LONGITUDINAL SHIP SECTION

ORV "BLU"

Ocean going 38m 60Tbp / FiFi 1 / Oil Recovery Vessel / TUG / Supply Vessel

MAIN PARTICULARS:

LENGTH OVERALL	37,70	m
LENGTH BP	33,70	m
BEAM	10,60	m
DEPTH	4,50	m
LIGHT DRAFT	3,40	m
LOADED DRAFT	3,80	m
SUMMER FREEBOARD	0,70	

The vessel is suitable for operation in Unrestricted Service for:
Supply, Antipollution Oil Recovery, Towing, Fire Fighting class 1

DOCUMENTATION:

CLASS	RINA "C" +Hull+Mach - Supply Vessel, Tug (TBP60), Rec-Oil, FiFi1-Waterspray, AUT-UMS, Unresticted Navig.
FLAG	Italian
PORT OF REGISTER	Napoli 537 RI
RADIO CALL SIGN	IJCK2
IMO No.	9479955
MMSI No.	247313400
Builder	Cantiere Navale Ipp.
Built Date	2012
Built Place	Salerno (Italy)

CAPACITIES:

BALLAST		121,0	m³
FUEL OIL		245,0	m³
FRESH WATER		108,0	m³
REC-OIL	total	310,0	m³
Fp<60°C	179,0		m³
Fp>60°C	131,0		m³
OTHER		10,0	m³
SLUDGE		5,0	m³
DISPERSANT		2,5	m³
FOAM		17,0	m³

PERFORMANCE:

MAXIMUM SPEED	13.0(average)	knots
CRUISING SPEED	10,0	knots
ECONOMICAL SPEED	8,0	knots
MAXIMUM FUEL CONSUMPTION (100%)	14,0	MT/day
85% LOAD FUEL CONSUMPTION	10,0	MT/day
50% LOAD FUEL CONSUMPTION	6,0	MT/day

TONNAGE (ITC):

Gross tonnage	464 GT
Net Tonnage	139 NT

CARGO DECK:

TONNAGE	290,0	Mt
STRENGTH	5,0	T/m²
LENGTH	17,0	m
WIDTH	7,0	m
CLEAR AREA	abt. 120	m²

ACCOMMODATIONS:

	Cabins:	Berths:
MASTER	1	1
CHIEF ENGINEER	1	1
OFFICER	2	2
OTHER	1	2
CREW	1	2
	2	2
	total accommod:	14

MACHINERY:

	Manuf./Type	
MAIN ENGINES	2x CATERPILLAR 3516B	
POWER	2x 1771 @ 1600rpm (MCR)	Kw
REDUCTION GEARS	2x MEKANORD 500 2HS	
GEAR RATIO	6.19.01	
PROPELLERS	2xCPP HELSET in Kort Nozzle	
DIAMETER & RPM	2500mm - 400rpm	
STEERING & RUDDERS	MARSILI - no.2 spade type	
BOW THRUSTER	Hydraulic -100Kw	
AUX. GENERATORS	Main: IVECO AIFO 8210srm36 2x 200KVA 380V-50Hz 3ph.	
	Harbour: IVECO AIFO 8065M12 1x 60KVA 380V-50Hz 3ph.	

ELECTRONICS & CONTROLS:

	Manuf./Type
ENGINE CONTROL / AUT	Mekanord / Samsung
DEPTSOUNDER	Furuno
GPS COLOR PLOTTER x2	Furuno
RADARS x 2	Furuno
RADIO SYSTEM	Furuno A1+A2+A3 GMDSS
GYRO / AUTO PILOT	SIMRAD
PA & TELEPHONE SYSTEMS	
INTERNET E-MAIL & SATELLITE	FBB
VHF-DSC	Furuno
LRIT, AIS, WEATHER FAX	Furuno/Navtex
SPEEDLOG	Furuno
REMOTE FLEET MANAG.NT	Computron Satellite Vessel Control

TOWING/ DECK EQ.:

Capacities:

MAX BOLLARD PULL	61,8 T
CONT. BOLLARD PULL	59,1 T
TOWING WINCH	DATA Hidrolik DTW -H Capacity 700m Ø48mm wire rope Max Dinamic Pull at 1st layer 45 T Brakeing capacity at 1st layer 120 T
SPARE WIRE REEL	Hydraulic driven 700x1200
SPARE WIRE	300m Ø48mm wire rope
TOWING HOOK	70 T SWL
PUSHING BOW	Rubber fender
FENDERING	Fender fitted all around
ANC. WINDLASS	CMM 24x2
ANCHOR & CHAIN	2x AC14 475Kg - Chain 24 U3 (6+7L)
DECK CRANE	3.0T @10m outreach
LIFERAFT	3 - total 46 Pers.
RESCUEBOAT	6 P Solas GRP hull with 50hp outboard engine

SPECIAL EQUIPMENT:

Manuf./Type

FIREFIGHTING (FiFi 1)	FFS 2x remote Monitor dual flow with 1200cu.m./h each and 300cu.m./h foam for FiFi against hydrocarbon fire Throw lenght/height 120m/50m
WATER SPRAY SYSTEM	Curtain type for complete vessel self protection
WATER MAKER	1T/day
FW TRANFER E/PUMP FO	50cbm/h @ 60m head
TRANFER E/PUMP	40cbm/h @ 60m head
OILY WATER SEPARATOR OIL	IMO 60(33) 0,2cbm/h -15ppm
DISPERSANT SYSTEM	2x 8m lateral hydraulic arm
OIL RECOVERY SYSTEM	2x100 m3/h in built system / from 10to 12000CsT 2x 12m side infl.sweeping arm / suction device
OILBOOM	Hydr. driven 2x 400m reel with inflatable boom
DEBRIS RECOVERY SYSTEM	2x inbuilt basket / suction device
SERVICE BOAT	5m antipollution b. /inboard eng.75Kw

GLOBECO
Spa.

Capitale Sociale
€6.000.000,00
C.F. e P.IVA: 07465970635

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URL: www.globeco.com

OIL RESPONSE VESSEL
Loa 38.0m

"BLU" Project

TECHNICAL SPECIFICATION

Documento	*ORV38_Short_T-Spec.doc*	*TOT PAGINE:11*
Revisione	*0*	
Emesso il	*Giugno 2010*	

	SETTORE	*NOME*	*FIRMA*
Redatto	*TEC*	*Giuseppe Maresca*	
Verificato			
Approvato	*TEC*	*Giuseppe Maresca*	

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INDEX

1 INTRODUCTION

Scope of the present Technical Specification is to describe the main characteristics and operative peculiarities of the project Oil Spill Response Vessel "ORV38" . The design concept and drawing contained in this specification are the property of GLOBECO S.p.A., the vessel is projected for the anti-pollution and multipurpose services, with the following operative profiles:

a. Coastal patrolling service: prevailing activity in time terms, to be carried out at reduced speed (around 7 ÷ 9 knots),

b. Oil spill detection to minimize damages to the environment.

c. Reaching the area, where the pollution has had place, in case of emergency, to be carried out at the maximum possible speed (abt 14 Knots)

d. Picking up polluting substances, to be carried out at the minimum speed possible (0.7 ÷ 1.0 knots)

e. Recovery of polluting oils, in case of spilling into the sea by inbuilt equipments

f. Solid materials recovery from the sea surface

g. Towing capability at abt. 60 TBP and off-shore assistance and services

h. Sea monitoring

i. Chemical analysis and taking samples

j. Rescuing service at sea assistance

k. Fire-fighting service

The vessel is a twin screw propeller ship, with controllable pitch propellers in kort nozzles, driven by diesel engines, with a continuous deck and a three-level superstructure, suitable for unrestricted service, with safety and rescuing equipment, is provided with inbuilt anti-pollution service system (Rec-Oil) and fire-fighting system.

The vessel is equipped with a radar oil spill detection system able to detect even small quantities of oil at further distance across a broad range of sea state and weather conditions.

The deck is without sagging, with trapezoidal camber and forecastle. The wheelhouse is on top the superstructure is provided with a large glazing windows to allow perfect external visibility all around. A superstructure contain accommodation and engine casing. The structure is be accessible from the internal staircase and from the forecastle deck through a stairway and landing.

Fire-fighting monitor is installed on fwd of bridge deck always under pilot controls and deck service telescopic crane to serve all main deck working area.

The towing hook is positioned in the middle of main deck and is equipped with the necessary ancillaries. Funnels are into the structure, to assure minimal obstruction to the visibility from the bridge, and exhaust gas pipes are extended above it.

1.1 Dimensions and main characteristics

Length overall	Loa	approx.	m	38.00
Length water-line	LWL	approx.	m	35.80
Breadth moulded	B	approx.	m	10.60
Main deck height	D	approx.	m	4.50
Light displacement draught	T0	approx.	m	2.50
Loaded draught	T	approx.	m	3.70
Gross tonnage	GT	approx	GT	464
Net tonnage	NT	approx	T	139
Free deck area	Ac	approx.	m2	150

Propulsion	No. 2 Controllable Pitch Propellers in Kort nozzles			
Propulsion power	No. 2 Diesel engines type CAT 3516B each 1771 kW at 1600 rpm			
Bow Thruster	1 off x 100Kw Hydraulic driven			
Maximum speed	V	approx.	knots	14,00
Power supply	N. 2 d/generators of 200 kW 380V-50 Hz N.1 harbour generator 50Kw 380V-50Hz			

Dimensional data can be liable to slight variations according to the project development.

1.2 Classification and regulations

The vessel is built in accordance with to regulations and under the supervision of RINA, in order to obtain the highest class

C HULL MACH AUT-UMS - Tug (60TBP)-Supply vessel - OIL RECOVERY SHIP - UNRESTRICTED NAVIGATION

Moreover she is comply with the standards, regulations, and both national and international (MARPOL/SOLAS etc.) rules for vessels of this kind, among which:

- SAFETY REGULATIONS (DPR 08.11.91 - 435)
- SOLAS 74 and subsequent emendaments
- INTERNATIONAL LOADLINE CONVENTION - LONDON 1966
- COLREG 72
- MARPOL 73 and subsequent emendaments Annex 1
- GMDSS FOR NAVIGATION IN AREA A1 + A2 + A3
- INTERNATIONAL TONNAGE CONVENTION
- ITALIAN HEALTHY REGULATIONS (LAW 16.03.39-1045 and subsequent emendaments)
- I.L.O.

In addition, the vessel will satisfy both standards ISO 2631 for vibration limits and res. A 468-IMO for noise levels.

1.3 Capacityandsub-division

• Fuel oil	approx.	252	m3
• Fresh water	approx.	35	m3 •
Rec oil - storage tanks	approx.	130	m3 •
Rec oil - setting tanks (1)	approx.	180	m3
• Water ballast	approx.	120	m3

• Sludge	approx.	5	m3
• Dispersant	approx.	10	m3 •
Others	approx.	20	m3

The vessel's hull is divided by seven water-tight bulkheads delimiting the following rooms from aft:

- Afterpeak
- Steering gear room
- Cargo hold
- Storage tanks for recovered oil
- Engine Room with double bottom for consumables
- Deep tanks
- Bow thruster room & fresh water
- Forepeak with boatswain's room

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(1) dual purpose fuel oil tanks

2. GENERALITIES

The vessel is a "V-shape" hull, with entirely welded longitudinal structure. The hull is built in steel "A" grade, tested by the Classification Society.

Structures are dimensioned according to Classification Society regulations, with shell-plating minimum thickness of 8 mm, stringer of 12 mm, approx. 600 mm high.

The minimum thickness of bulkheads, bulwarks, and upper deck is 8 mm; superstructures minimum thickness: 6 mm. Main deck reinforced.

Double butt welding are adopted, with the only exception of insulated areas in non-wet rooms; welding are opportunely grounded, free of irregularities, porosities or defects.

The non-magnetic area of the superstructure next to the compass is built in non-magnetic stainless steel.

The stern skeg will be projected to support the hull weight during docking; the skeg and other eventually boxed areas, inaccessible to maintenance, are treated internally with a cycle of special heat resistant painting before they get sealed and they are equipped with proper drain plugs, air vent and sounding pipe.

On the side are built proper structural boxes (Recess) capable to lodge the recovery systems.

In general all the openings in the structures in way of the hawse-pipes, bitts, sea chests, boxes etc. or for cables ways, pipes etc. are opportunely compensated with high-thickness inserts.

Proper scallops are provided to floor plates, girders (minimum radius 50 mm or 75 mm in the Rec-Oil tanks) already planned in the construction drawings.

In the Aft will is located a slipway for an easy passage of the booms, etc.

All outfitting parts, including doors for access to the superstructure, ventilation ducts, hatches, portholes and manholes, windows, etc. are built, as much as applicable, according to the requirements of Classification Society, SOLAS, and National Safety Regulations.

3 . RECOVERY SYSTEM

The vessel is equipped with GLOBECO built-in oil recovery system in order to make the vessel as efficient as possible in all sea/weather condition.

On both sides of the ship, were realized recesses which house the recovery machineries, they have wide openings at the waterline level and are equipped with hydraulically operated doors.

On each side a flexible sweeping arm is provide to carry the pollutant materials towards the inbuilt recovery plants, the system is able to increase the thick of the floating pollutant before the collection. A laterally positioned hydraulic arm (spar) of approx. 8 mt long is hinged on the vessel side, it's able to maintain the flexible sweeping arm of approx. 12 mt long in the correct collect position, guiding the pollutant towards the inside of the vessel. On the vessel the flexible sweeping arm is fixed to the recess door.

Both recesses are provided with a suction system.

Each system have the following scheme: opening of the side door together with the action of the suction screw propeller draws the polluted water directly through the recovering machineries with a flow rate of about 3000m3/h. The first system remove macro-polluting debris / garbage with a recovery basket, then the belt oil skimmer able to remove the medium / heavy oils (> 15000 cSt) at the oil recovery rate of about 100m3/h with an oil/water efficiency of 96%, then an under-vacuum oil separator able to recovered from medium to very light oil at the oil recovery rate of about 30m3/h with an oil/water efficiency of 90%. At the end of the cycle the suction screw expel clean water from the recess.

The recovered oil by transfer pumps will be discharged into the recoil tanks.

In addition the system include:

- No. 2 storage and No.5 setting tanks for recovered oil, connected to each other by means of foot valves controlled in order to allow further separation by natural and forced settling.
- No. 1 electric driven pump from the above mentioned settling tanks in order to facilitate water/oil settling
- No. 2 hydraulic driven submersible pumps for discharging the recovered oil onshore or to a barge
- The above mentioned equipment will be driven by a central hydraulic system, and will be controlled by means of 2 local control stations for every hydraulic equipments for the recovery system, conveyance, pouring off, storage, and discharge of the polluted liquids.
- No. 2 remote controlled hydraulic power pack to supply the hydraulic machineries will be placed in engine room.

Moreover to carry out the oil recovery service the vessel will be equipped with:

- No.1 reel for 200 m of pneumatic open sea booms, reel capacity up to 400 m
- No.1 reel for 200 m of coast booms, reel capacity up to 400 m

- No.1 anti-pollution boat equipped with overturning basket for recovery of floating solids in the shallow waters. The boat will have the double purpose of anti-pollution and to arrange the booms.
- No 1 astern slipway that extends itself practically the whole width in order to facilitate the launching and collection of the booms,
- No. 1 dispersant system provided with a storage tanks of approx. 2 m3, the system is equipped with metering pump, mixing barrel, and spraying system intergrated within the side hydraulic arms.
- No.2 side arm each of about 9m in length. The arm fitted on maon deck in a suitable position are hydraulic driven and have the function to extend on side the inflatable sweeping boom able to recover the floating pollution materials into the side skimmer recess.

For the recovery (activity) of big solid materials from the sea surface the ship is provided with the following specific equipment:

- One folding hydraulic crane of 3500 kg x m with a maximum range of approx. 10 m, equipped with winch of 2000 kg.
- N. 1 hydraulic bucket of 370 lt, for collecting floating solids by service crane.
- N.1 tugger winch for the moving of cumbersome solid materials on the deck

4. LABORATORY

On the maindeck stbd side a wet laboratory with an adjacent office arranged. The rooms have an access door direct from the external deck towards the stern and a door from the accommodation corridor.

The scientific equipments provided are able for the monitoring and analysis activities carried out on board of the vessel.

The main system is based on a central unity, the hardware and software components, where all collected data, coming from hydrological and biological-chemical analysis are stored.

Data, coming from the multiparametric probe, from chemical auto analyser and from positioning and depth system, with the information got by analysis on water samples, arrive to the software, where they can be inserted and then managed for statistical elaboration.

The vessel is equipped with a modem connected to the satellite communication system for internet connection