The floating dock is intended for maintenance and repair of large tankers, lash-carriers and ice-breakers of conventional or nuclear propulsion. Capacity of electric, steam and air plants and crew provisions allows 15 days independent operations including docked ship. Three pontoons configuration offers self docking possibility. Two end pontoons are of detachable type. 34 independent ballast tanks in total. Accommodation provides necessary spaces and room for crew, workers and docked ship's crew. Crew: 9 cabins with toilets, 1 mess room, 3 day rooms, galley etc. Workers: 3 rest rooms, sanitary and dress changing rooms. Living spaces are air conditioned, sanitary spaces are heated and ventilated.

**Classification:** USSR Register of Shipping

- **Length over all (incl. platforms):** 311.28 m
- **Length over pontoons:** 275.28 m
- **Breadth of end pontoons, outside:** 63.30 m
- **Breadth at middle pontoon, outside:** 75.30 m
- **Inside breadth:** 51.50 m
- **Height total (incl. side walls):** 22.50 m
- **Depth of pontoon, CL:** 6.10 m
- **Height of keel blocks:** 1.80 m
- **Draught, loaded:** 5.30 m
- **Draught, submerged:** 19.90 m
- **Depth above keel block when submerged:** 12.00 m
- **Freeboard, top deck, when submerged:** 2.00 m

**Capacities**

- **Loading (lifting) draft:** 5.3 m
- **Ballast water (extra):** 60,000 tons
- **Lifting time:** 2.5 hours
- **Permitted loads of pontoon deck:**
  - Longitudinal bulkheads: 200 tons/m each
  - Transversal bulkheads: 200 tons/m each
  - Uniformly distributed load: 0.7 tons/m²
  - Concentrated load at girder crossings: 250 tons
  - Vehicle axle load: 18 tons

**Ballast piping:**
- 12 x pumps, el. driven, cap. 4,000 m³/h at 0.9 bar each, all situated in pump rooms.
- 34 x butterfly valves, hydr. operated, hydraulic power plant in pump rooms.

**Towing-in equipment:**
- 2 x pulling cars, 160 kN pull force each
- 2 x retarding cars, 140 kN brake each
- Remote control from control house.

**Fenders:**
- 2 x roller rubber type at entrance, Keel / side blocks: 7/14 pcs, 2,500 kN permitted load each.

**Anchoring/ mooring:**
- 4° chain cables, total length 200 m, 8 x capstans, 120 kN pull force at 10 m/min each.
- 2 x portal type, 100/2 kN SWL, 32 m outreach, each.
- Lifts: 4 x passenger lifts 1 ton SWL each.

**Steam plant**
- 1 x boiler, oil fired, 6 bar, 5 t/h steam.

**Electric plant**
- Off-shore supply connect: 3 x 1,200 kVA, 1 x 600 kVA, 1 x 500 kVA, 1 x 300 kVA, 1 x 200 kVA.
- One generator set, 850 kVA, D.M. driven.
- One emergency gen. set, 100 kVA, D.M. driven.
Catamaran Crane Ship

**Builder / Yard No.:** Shipyard 3. MAJ / 617

**Name:** m/s ISPOLIN

**Owner / Flag:** Sudoimport / USSR

**Designed by:** Shipyard 3. MAJ

**Delivered:** 1989

**Classification:** USSR Register KM ★ 3 2 I

**A2 - Special Crane Ship**

**Lengt over all:** 148.70 m

**Length btw perp:** 139.00 m

**Breadth maximum:** 50.00 m

**Depth moulded:** 12.00 m

**Draft design:** 4.35 m

**Deadweight, at draught:** 3,900 t

**Gross tonnage:** 17,500

**Propulsion electric motors MCR:** 2 x 1,600 kW

**Electricity generation diesel power plant:** 4 x 2,000 kW

**Trial speed:** 11 knots

**Safety work weather conditions**

- **wind:** 12 m/sec
- **waves h 3% =** 2.0 m
- **Cargo deck area:** 5,400 m²
- **Permitted deck load:** 50 kN/m²
- **Cruising range:** 8,500 n.m.
- **Crew complement:** 120

**Crane**

- **Main hook capacity:** 2 x 6,000 kN
- **Aux. hook No. 1 capacity:** 3,000 kN
- **Aux. hook No. 2 capacity:** 300 kN
- **Main hook outreach (outboard):** 30 m
- **Aux. hook No. 1 outreach (outboard):** 50 m
- **Main hook lifting height:** 80 m
- **Aux. hook No. 1 lifting height:** 66 m
- **Main hook hoisting speed:** 3 m/min
- **Aux. hook No. 1 hoisting speed:** 6 m/min
- **Slewing speed:** 0.2 rpm

The slewing crane of 12,000 kN (abt. 1,220 tons) SWL capacity fitted on catamaran hull vessel is the world’s highest capacity crane vessel of such type. The crane unit is intended for shipment and loading / unloading of heavy offshore structural parts for instance, jackets, foundations etc., as well as for a number of offshore operations and erection of various marine technology units at sea. This huge crane vessel is delivered as a kit set and mounted at the destination indicated by the owner.
Off-shore Platforms

Builder: Shipyard VIKTOR LENAC
Name: IVANA A, IVANA B, IVANA D
Owner: INAgip
Delivered: October 1998 to November 2000
Classification: Croatian Register of Shipping / Croatia

Main units installed on the platforms

- Wellhead system
- Launching trap system
- Vent system (IVANA B.)
- Purge burner system
- Separator system
- Methanol system
- Fuel gas system
- Refrigeration system
- Hydraulic power system
- Instrument air system
- Electrical system (IVANA B.)
- Service diesel generator system (IVANA B.)
- Drain system
- Process water filtration system
- Navigation aids system
- Power switchboard (PMCC)
- Telecommunication system (IVANA B.)
- Control and safety system (IVANA B.)
- ESD system

Jacket construction

- In situ water depth: 43 m
- Overall height: 48.694 m
- Lower end dim: 21.6 m by 21.6 m
- Upper end dim: 14.103 m by 21.6 m
- Weight: 634 tons
- Legs (main columns): 4 pcs, dia 1,690 m
- Bracings (horizontal and diagonal):
- Mud mats
- Riser 5 pcs, 406.4 mm, 355.6 mm, 88.9 mm, 60.3 mm dia
- Cathodic protection and monitoring system
- Grouting and ballasting system
- Wellhead module
- Barge bumpers
- Boat landing

Living Quarters

- 37 persons in two bed cabins
- Overall Length: 22 m
- Overall Width: 7.2 m
- Overall Height: 11.4 m
- Weight: 375 t
- Helideck: Suitable for ICAO 3 type helicopter

IVANA A

- Is a manned platform with all facilities for production management control either in normal and emergency conditions with a telemetering system for monitoring all platforms within Ivana Gas Field

IVANA D

- Unmanned gas production platform with all facilities for production management control either in normal and emergency conditions being monitored by means of telemetering system from IVANA A platform.

IVANA B

- Foreseen operating life: 20 years
- No. of wells: 3 with double completion
- Average string gas prod.: 70,000 Sm³/d
- Weight: 569 t
- Overall height: 79.6 m
- Overall length: 15.1 m
- Overall width: 14 m
- Water depth: 41.5 m

IVANA B / IVANA D

- Main units installed on the platforms
- Wellhead system
- Launching trap system
- Vent system (IVANA B.)
- Purge burner system
- Separator system
- Methanol system
- Fuel gas system (IVANA B.)
- Refrigeration system
- Hydraulic power system
- Instrument air system
- Electrical system (IVANA B.)
- Service diesel generator system (IVANA B.)
- Drain system
- Process water filtration system
- Navigation aids system
- Power switchboard (PMCC)
- Telecommunication system (IVANA B.)
- Control and safety system (IVANA B.)
- ESD system
Off-shore Construction

Builder: Shipyard VIKTOR LENAC
Name: MARICA, IDA A, IDA B, IKA B, KATARINA
Operator: INAgip
Location: North Adriatic Sea
Water depth: from 47 m to 70 m
Delivered: May 2004 to December 2006
Classification: Croatian Register of Shipping / Croatia

JACKET UNDER CONSTRUCTION

IDA B
MARICA
MARICA / KATARINA

MISCELLANEOUS 137
CROATIAN SHIPBUILDING

• Ida B, Ika B jackets monopod type with wellhead modules
  Ida B  Ika B
  Weight: 350 t 360 t
  Height: 59 m 61 m

The jackets are structure with a main column (Monopod) having a diameter ranging from 1800 to 2200 mm suitable to support an unmanned integrated deck and transferring the loads to three underwater sleeves through which the foundation piles are driven.

The monopod is connected to the sleeves with equilateral triangular trussed structure, with 24 m side in two horizontal plans. Grouting the annulus between the piles and the relevant sleeves makes the connection between the framed structure and the 60° foundation piles.

At the top of the monopod, a wellhead module is installed in order to allow drilling operations from a jack-up rig and subsequently the deck installation. The jacket is provided with one mini boat landing.

• MARICA / KATARINA process modules
  Mainly unmanned, and temporary manned gas production platforms with all facilities for production management control either in normal and emergency conditions being monitored by means of telemetering system from IVANA A platform.
  Process modules with living shelter incorporated on MARICA platform:
  • Capacity of 6 persons for two weeks autonomy of living
  • Helideck: Suitable for ICAO 3 type helicopter

• IDA A, IDA B, IKA B process modules
  Unmanned gas production platforms with all facilities for production management control either in normal and emergency conditions being monitored by means of telemetering system from IVANA “A” through IKA “A” platform.

Foreseen operating life:

<table>
<thead>
<tr>
<th></th>
<th>MARICA</th>
<th>IDA A</th>
<th>IDA B</th>
<th>IKA B</th>
<th>KATARINA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of prod. wells:</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
<td>20 years</td>
</tr>
<tr>
<td>Average string gas prod.</td>
<td>600,000 Sm3/d</td>
<td>165,000 Sm3/d</td>
<td>150,000 Sm3/d</td>
<td>310,000 Sm3/d</td>
<td>643,000 Sm3/d</td>
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<tr>
<td>Weight:</td>
<td>744 t including helideck</td>
<td>123 t</td>
<td>112 t</td>
<td>134 t</td>
<td>750 t</td>
</tr>
<tr>
<td>Overall height:</td>
<td>16 m</td>
<td>7.5 m</td>
<td>7.0 m</td>
<td>7.0 m</td>
<td>16 m</td>
</tr>
<tr>
<td>Overall length:</td>
<td>18 m</td>
<td>10 m</td>
<td>10 m</td>
<td>10 m</td>
<td>26 m</td>
</tr>
<tr>
<td>Overall width:</td>
<td>22 m</td>
<td>10 m</td>
<td>10 m</td>
<td>10 m</td>
<td>29 m</td>
</tr>
<tr>
<td>Sea Water depth:</td>
<td>69 m</td>
<td>47 m</td>
<td>53 m</td>
<td>55 m</td>
<td>70 m</td>
</tr>
</tbody>
</table>

Marine units

Jacket under construction
Steel Structures for Off-Shore Platform

Builder: BRODOSPLIT – Naval and Special Vessel Shipyard Ltd.
Name: IVANA A, IVANA B, IVANA D
Owner: INAg
Delivered: October 1998 to November 2000

Classification: Croatian Register of shipping / Croatia

IVANA A
Is a manned platform with all facilities for production management either in normal and emergency conditions with a telemetering system for monitoring all platforms within Ivana Gas Field.

Foundation piles: 4 pcs. x 144 m (Ø 1524 mm, thickness 40-50 mm) ... 868 tons

IVANA B / IVANA D
Unmanned gas production platform with all facilities for production management control either in normal and emergency conditions being monitored by means of telemetering system from Ivana A platform.

IVANA B
Foundation piles: 3 pcs. x 148 m (Ø 1066,8 mm, thickness 30-50mm) ... 372 tons
Conductors: 4 pcs. x 104 m (Ø 508 mm, thickness 25,4 mm) ... 133 tons

IVANA D
Foundation piles: 4 pcs. x 105 m (Ø 762 mm, thickness 30mm) ... 197 tons
Conductors: 2 pcs. x 110 m (Ø 508 mm, thickness 25,4 mm) ... 35 tons
Pipe section for jacket: 8 pcs - 45 m (Ø2500/1800 mm, thickness 25-60 mm) ... 110 tons
Cutter Suction Dredger

Builder / Yard No.: Shipyard ULJANIK / 480, 481, 484, 485
Owner / Flag: DMM, Luxembourg

Classification: Bureau Veritas
Dredger
Unrestricted Navigation
CLEAN SHIP 7+

Length over all: 138.50 m
Length btw perp.: 110.50 m
Breadth moulded: 26.00 m
Depth to maindeck, moulded: 8.80 m
Depth to cranedeck, moulded: 12.20 m
Draft design: 5.50 m
Draft freeboard: 5.90 m
Draft scuttling: 6.00 m
Deadweight at design draught: 2,200 t
Deadweight at freeboard draught: 2,680 t
Dredging depth (with 60° angle of cutterladder): 35.0 m
Suction pipe diameter: 900 mm
Discharge pipe diameter: 900 mm
Main engines:
3 X MAN B & W Diesel A.G.; 6L48/60, 7,200 kW/500 RPM
Trial speed at 7,000 kW, on draught of 5.50 m: 13.0 knots

Type and function
The twin screw self-propelled cutter suction dredger capable of performing following functions:

a) Capable of dredging compacted sand, stiff clay, rock and similar soils.
b) Capable to dredge on spuds up to a dredging depth of 35.0 m, with the cuttershaft at an angle of 60° with the baseline, and vessel on even keel. The minimum dredging depth is about 6.5 m.
c) Capable to deliver the spoil either to two bargeloading systems (one PS, one SB) into barges, or through a swivel to a floating pipeline.
d) The dredger is equipped with three dredgepumps:
   - one singlewalled dredgepump, electrically driven, installed in the cutterladder.
   - two doublewalled dredgepumps, electrically driven, installed in the pumproom.
e) The dredger is equipped with three identical spuds:
   - one working spud, installed in the spudcarrier.
   - one auxiliary spud.
   - one spare spud.
Spuds are hoisted/lowered by means of hydraulically driven winches.

f) The dredger is equipped with an electric motor with speed control by means of a frequency converter.
g) The vessel has an automated engine room, suitable for unmanned operation, according to the requirements of Bureau Veritas AUT-UMS and the Authorities.
h) Control of the propulsion, steering installations from the wheelhouse. Dredging installation control for one-man operation from a central control position in the wheelhouse.

Machinery installations
- 3 diesel driven main AC generator sets, each with a generator power of about 7,200 kW
- 1 diesel driven auxiliary AC generator set, with a generator power of about 1,670 kWe
- 1 diesel driven AC generator set for emergency service, with a generator power of about 250 kW
- 1 electrically driven cutter, with a power of 4,400 kW
- 1 electrically driven dredgepump on the cuttershaft, with a power of 4,250 kW
- 2 electrically driven dredgepumps in the pumproom, each with a power of 5,000 kW
- 2 electrically driven side wire winches, each with a power of 550 kW
- 2 electrically driven ladder winches, each with a power of 550 kW
- 2 electrically driven propellers, each with a power of 3,500 kW

Capacities
Tank capacities (bunker tanks):
- Heavy Fuel Oil: 1,250 m³
- Diesel oil: 110 m³
- Fresh water: 200 m³
- Lubricating oil: 50 m³
- Water ballast: 300 m³

Crew Complement: 46 persons

Builder / Yard No.: Shipyard ULJANIK / 480, 481, 484, 485
Owner / Flag: DMM, Luxembourg
Classification: Bureau Veritas
Dredger
Unrestricted Navigation
CLEAN SHIP 7+
**Shallow Draught Cable Layer**

**Builder / Yard No.:** Shipyard VIKTOR LENAC / 128  
**Name:** c/s ARCOS  
**Owner:** Bohlen & Doyen Group, Germany  
**Designed by:** VK-SANDVIK AS, Norway  
**Flag:** German  
**Classification:** Germanischer Lloyd

**Length over all:** 86.00 m  
**Breadth moulded:** 24.40 m  
**Depth moulded:** 5.20 m  
**Operation draught:** 2.90 m  
**Design draught:** 3.30 m  
**Block coefficient:** 0.84  
**Deadweight:** 2,500 DWT  
**Speed:** 12 knots  
**Bollard Pull:** 55 tons  
**Accommodation:** 42 persons

**Cable tank capacity:** variable tanks, min.3 x 150 ton, plus 9 x 30ton tanks  
**Deck cargo capacity:** 2,500 tons  
**Deck working area:** 1,300 m²  
**Deck load:** 10/20/150 m² (8 Heavy load area)

**Propulsion**  
**Diesel gensets:** 5 x Cummins KTA36DM-AEM  
**Installed power:** 4,466 kW  
**Bow propulsion:** Jastram 2 x 600 kW  
**Stern propulsion:** Schottel 2 x 1,250 kW

**Tank Capacities**  
**Diesel fuel oil:** approx. 1,050 cum  
**Lub oil:** approx. 10 cum  
**Fresh water:** approx. 480 cum  
**Ballast:** approx. 1,000 cum  
**Sewage:** approx. 25 cum

**Basic functions**  
Cable installation, maintenance and repair in different water depth from very shallow landing areas to 5,000 metres. Positioning system: DP2, 4 mooring winches and 2 spuds. Various cable laying equipment: LARS/ROV, Linear cable engines, 60 t A-frame, Plough, Cranes etc.
Anchor Handling, Towing Firefighting and Supply Vessel

Builder / Yard No.: Shipyard TROGIR / 186, 187, 188, 189
Name: m/s BRODOSPAS-41
Owner / Flag: Brodospas / Croatia
Designed by: Shipyard Trogir
Delivered: 1985, 1986

The “BRODOSPAS-41” is intended for various offshore duties and operations for instance: drilling rigs, towing and anchor handling, supply of rigs with fuel, water and other consumables, and firefighting. Two pairs of main engines driving via two gearboxes two OP propellers and two shaft el. generators giving max. flexibility for different operation modes. OP propellers with turnable nozzles and one stern and one bow side tunnel type thrusters offer excellent manouvurability and easy joystick control under extremely rough weather conditions. Crew accommodation 10 single berth cabins and 4 double berth cabins each with private toilet space.
Passengers accommodation: 2 six berth cabins.

Classification: LRS; W100 A1 UMS, Offshore TUG / Supply Ship

Main engines
four SEMT PIELSTICK MCR
4 x 1,500 kW/900 rpm
Trial speed, 92% MCR draft 5.00 m 16.2 knots
Bollard pull, static, 100% MCR 1,020 kN

Capacities
Cargo: Bulk cement tanks 170 m³
Deck cargo 800 tons
Deck cargo area 420 m²
Permitted deck load 5 tons/m²
Drill/ballast water 688 m³
Consumption BFO of M.E. 28.5 tons/24 hours
Cruising Range, at 80% MCR 9,000 n.m.
Crew complement 14
Passengers: 12

Towing and anchor handling equipment:
• One winch of triple drum/twin chainwheel type, hyd. driven 1,800 kN
• Two winches of tugger type, hyd. driven, pull force 100 kN each
• One triple robe reel drum, hyd. driven, cap. 3 x 1,200 m/64 mm wire rope
• One wire/chain stopper of Karm Fork type, 4” chain
• Two towing pins (hooks) of cap. 250 kN, vert. hyd. operated
• One stern roller of 2,000 x 3,700 mm; max. shock load 3,500 kN
• One windlass of twin type, hyd. driven, 36 mm chain
• Two capstans of pulling force 60 kN each

Firefighting equipment
• Two pumps cap. 1,200 m³/h at 14 bar, el. mot. driven
• Two monitors cap. 20 m³/min water or 10 m³/min foam-water each, hyd. remote control
• One foam pump cap. 63 m³/h at 16 bar
• One water spraying/self protection pump, cap. 400 m³/h at 7.5 bar

Cruising Range, at 80% MCR 9,000 n.m.
Crew complement 14
Passengers: 12

Main engines
four SEMT PIELSTICK MCR
4 x 1,500 kW/900 rpm
Trial speed, 92% MCR draft 5.00 m 16.2 knots
Bollard pull, static, 100% MCR 1,020 kN

Capacities
Cargo: Bulk cement tanks 170 m³
Deck cargo 800 tons
Deck cargo area 420 m²
Permitted deck load 5 tons/m²
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Cruising Range, at 80% MCR 9,000 n.m.
Crew complement 14
Passengers: 12

Main engines
four SEMT PIELSTICK MCR
4 x 1,500 kW/900 rpm
Trial speed, 92% MCR draft 5.00 m 16.2 knots
Bollard pull, static, 100% MCR 1,020 kN

Capacities
Cargo: Bulk cement tanks 170 m³
Deck cargo 800 tons
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Cruising Range, at 80% MCR 9,000 n.m.
Crew complement 14
Passengers: 12

Main engines
four SEMT PIELSTICK MCR
4 x 1,500 kW/900 rpm
Trial speed, 92% MCR draft 5.00 m 16.2 knots
Bollard pull, static, 100% MCR 1,020 kN

Capacities
Cargo: Bulk cement tanks 170 m³
Deck cargo 800 tons
Deck cargo area 420 m²
Permitted deck load 5 tons/m²
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Cruising Range, at 80% MCR 9,000 n.m.
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Towing and anchor handling equipment:
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• Two pumps cap. 1,200 m³/h at 14 bar, el. mot. driven
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• One foam pump cap. 63 m³/h at 16 bar
• One water spraying/self protection pump, cap. 400 m³/h at 7.5 bar

Cruising Range, at 80% MCR 9,000 n.m.
Crew complement 14
Passengers: 12
**Research Vessel**

**Builder / Yard No.:** BRODOSPLIT-Naval and special Vessel Shipyard Ltd. / 513

**Owner / Flag:** Institute of Oceanography and Fisheries / Croatia

**Delivery:** 2008

**Classification:** Croatian Register of Shipping

* 100 A1 3 Research Vessel S, M1 AUT 3

**Hull and superstructure are built of shipbuilding steel grade A, welded construction.**

One main propulsion engine has been install, 954 kW, driving 5 blades CPP.

Passenger and crew accommodation are air-conditioned.

Electric power is provided from 2 diesel generators 1 x 125 kW and 1 x 80 kW.

Radio equipment includes: *VHF DSC, VHF portable, AIS and NAVTEX.*

Navigation equipment consists of: GPS compass, echo sounder, speed log, radar, auto-pilot.

Passenger accommodation includes 8 cabins for explorers and 5 cabins. Galley, mess and 3 scientific labs has been provided.

---

**Main Characteristics**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length, over all</td>
<td>36.60 m</td>
</tr>
<tr>
<td>Breadth</td>
<td>8.15 m</td>
</tr>
<tr>
<td>Depth</td>
<td>4.55 m</td>
</tr>
<tr>
<td>Draught</td>
<td>3.04 m</td>
</tr>
<tr>
<td>Gross tonnage</td>
<td>329 t</td>
</tr>
</tbody>
</table>

**Accommodation**

- Explorers: 17
- Crew: 7

Primary purpose of this ship is scientific research of sea, mostly in Adriatic Sea.

Ship is equipped for monitoring of sea bottom up to 1000 m depth.
Oil Spil Recovery Craft

ECO-13

Builder / Yard No.: Shipyard KRAJEVICINA / 539, 540, 541
Owner / Flag: Ministarstvo zaštite okoliša i prostornog uređenja / Croatia
Designed by: Shipyard Kraljevica / Brodarski Institut, Zagreb
Delivered: 2003, 2004

Design Features

The arrangement is based upon a number of considerations including operational requirements, habitability, producibil-
it, and access for personnel, and equipment maintenance. The aluminum hull is divided into five watertight compart-
ments: fore peak, crew compartment, oil spill structural tank, machinery compartment and aft peak. The arrangement of
the aft deck was primarily influenced by the housing and han-
dling requirements for a deck crane, booms and skimmer. Lo-
cation forward from the wheelhouse is used for the fitting of
mooring and anchoring equipment. There is also a railing
which facilitates easy transfer of boarding party to other craft.

The crew compartment situated in the hull is equipped with
four berths, one locker, galley, toilet, shelves and emergency
exit through a waterproof deck window. Access to the super-
structure is through the afterbridgepassage equipped with
stairs. The superstructure contains a wheelhouse compart-
ment situated on the port side and an aisan on the star-
board side. The enclosed wheelhouse bridge, includes full engines
instrumentation and alarm, and communication, navigation
and electrical equipment. Reverse sloped windows are fitted
to reduce internal and external glare and maximize interior
volume.

The machinery compartment houses main propulsion engines
consisting of two Volvo TAMD 74 C EDC each developing 330
kW at 2600 rpm coupled via flexible couplings to the reverse
reduction gearboxes RM 307V-1B equipped with trolley wheels,
two fuel tanks, hydraulic oil tank, firefighting pump, air com-
pressor, dispersant system, heating unit, and other equip-
ment. The electric system consist of a 24 V DC power gen-
eration and 12 V and 24 V DC power distribution systems and
a 220 V AC, single phase, distribution system. All loads vital
to the operation of the craft and safety of the crew are supplied
from the DC power distribution system. The electric main
switchboard and general-purpose batteries are located in the
superstructure.

Special Equipment

For the purpose of oil spill recovery, the ECO-13 is equipped
with: free floating skimmer, oil spill temporary tank, deck
cone, oil containment booms, air compressor and dispersant
systems (3). An oil skimmer equipped with a transfer pump is
used to recover floating oil from or near the surface of water.

During the operation, skimmer is assisted with a deck crane
to be within the sight of the operator that should be able to
handle debris found at the spill site, such as plastic bags,
aluminum cans, bottles, etc. Oil containment booms are pri-
marily used to deflect oil to prevent that the oil slick hits sen-
sitive areas and for containment of oil for later recovery by
a skimmer. The standard ECO-13 booms package include 200
meters of inflatable booms or 400 meters of foam filled buoy-
ancy chamber booms. The oil recovered by the skimmer is
pumped into a temporary storage tank. In the case when the
temporary tank onboard the ECO-13 is critical, it is suitable
to use a floating flexible storage tank or other vessels
such as barges, small tankers etc. In order to increase the ef-
ciency of storage tank capacity, recovered water can easily
be decanted from the storage tank, to be discharged in front
of the sweep. In this way, any oil in the decanted water will
be recovered again. For removing oil from the sea surface, par-
ticularly when mechanical recovery by skimmer is not possi-
bile, the ECO-13 is equipped with a spraying dispersant
system. The system is equipped with a separate water pump
and a dispersant tank and applies a dispersant diluted with
water. In order to minimize losses due to wind drift, spraying
nozzles are positioned on portable outboard booms situated
near the sea surface in working condition. For firefighting pur-
poses the ECO-13 standard equipment includes a firefighting
monitor situated on the superstructure deck. Other ECO-13
special equipment, such as debris recovery system could be
tailored on customers request.

Main characteristics

Loa 13.10 m
B 4.40 m
Speed max 29 knots
Cruising range 300 Nm at 25 knots
Multipurpose Towing, Supply and Firefighting Vessel

Builder / Yard No.: Shipyard TROGIR / 197, 198
Owner / Flag: Brodospas, Split / Croatia
Designed by: Shipyard Trogir
Delivered: 1989

The twin screw vessel is intended for various offshore duties and operations such as: long distance towing, harbour assistance, supply of rigs and fire fighting. Each main engine drives one rateable 4-bladed CP propeller in nozzle and one firefighting pump of 300 m³/h cap. via front side power take off coupling. Steel hull with double knuckle form, flat stern, centerline skeg, plate thickness increased 0.5-3.0 mm above class rule requirements is welded throughout.

Classification: CRS; 100 A1 M1-2-A1-VT

Length over all 30.50 m
Length btw perp 25.40 m
Breadth moulded / max. 10.70 m/11.20 m
Depth moulded 5.30 m
Draught, midship 4.05 m
Draught, aft, max. 4.40 m
Deadweight, at draught 4.05 m 180 tons

Main engine: 2 x Jugoturbina -  Pielstick PA 6, MCR 2 x 1,450 kW/900 rpm

Trial speed, at 96.5% MCR and draught of 4.05 m 12.6 knots
Bollard pull, static, 100% MCR 520 kN

Deck Equipment
- 1 deck crane of 30/1 kN SWL at 4.5/8.5 m outreach
- 1 comb. windlass - towing drum winch; 80 m dia 96 mm synth. rope, break force 1,000 kN
- 1 capstan aft of 30 kN TWL
- 1 automatic towing winch with drum cap. 250 m dia 44 mm steel wire rope, breakforce (1 st layer) 1,000 kN with remote and local control
- 1 towing hook 600 kN SWL, remote release
- 2 water/foam monitors

Auxiliary plant
- Two el. gen. sets, 140 kVA D.M. driven each
- Two fire fighting pumps, 300 m³/h - 14 bar driven by M.E. each.

Cruising Range at speed 11.7 knots and 150 tons DFO: abt. 2,800 n.m
Crew complement 10

Capacities
- Diesel fuel oil abt. 164 m³
- Lubrication oil abt. 2 m³
- Potable Water abt. 73 m³
- Foam abt. 12 m³
- Ballast tanks abt. 35 m³
- Segregated water ballast, total: abt. 15,500 m³
- Cruising Range at speed 11.7 knots and 150 tons DFO: abt. 2,800 n.m
- Crew complement 10
Multipurpose Towing, Supply and Firefighting Vessel

Main characteristics

- Length overall: 29.85 m
- Length between perpendiculars: 25.65 m
- Breadth moulded: 8.00 m
- Depth moulded: 4.10 m
- Draught midship: 2.45 m
- Draught max: 3.95 m
- Engine power: 2,200 kW; at 900 RPM
- Trial speed at 90% MCR: 13.00 kn
- Bollard pull, static, 100% MCR: 350 kN
- GT: 195
- NT: 58.38
- Crew complement: 10 persons

Capacities

- Diesel fuel oil: 70 t
- Fresh water: 20 t
- Miscellaneous: 8 t
- Lubrication oil: 2.5 t

Builder: Shipyard KRALJEVICA
Owner/Flag: JADRANSKI POMORSKI SERVIS Rijeka / Croatia
Yard No.: POLLUX
Yard No.: 475 VENUS
Delivered: 1984 / 1988
Classification: HR 100 A 1 M TUG BOAT

- 4-bladed CP propeller in nozzle.
- One firefighting pump capacity 120 cu.m./h via front side power take off coupling.
- One bow thruster BRUNVOLL type power 170 KW at 900 RPM.
- Two diesel generator of 50 KW A.C. 3x380 V, 50 Hz, driven each abt. 70 KW and 1500 RPM.
- One port generator of 20 KW power of diesel motor 30 KW at 1500 RPM.
- The vessel has a very good manoeuvring property, thanks to CP propeller in an active Kort nozzle, and to a strong bow thruster.

The single screw vessel is intended for various off-shore duties and operations such as: long distance towing, harbour assistance, supply of rigs and fire fighting.

For this purpose, the vessel is equipped with a 50 t self-releasing towing hook, having a constant pulling force of 36 t.