
S.A.I. AMBROSINI

Società Aeronautica Italiana

MARINE DIVISION



S.A.I. 121

THRUSTER

bridging boat

S.A.I. 121 "THRUSTER" bridging boat

Adopted by the Italian Ministry of Defence

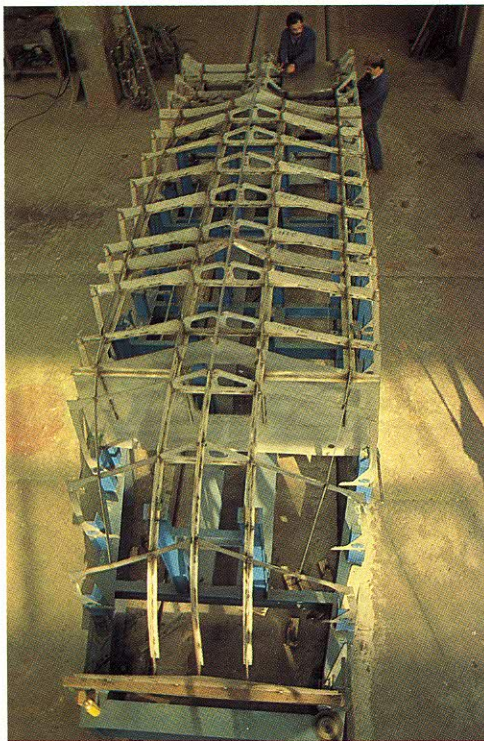
The S.A.I. 121 "Thruster" bridging boat is designed and constructed by S.A.I. Società Aeronautica Italiana.

The Italian Ministry of Defence, after long and exacting trials, has opted for this vessel thanks to its remarkable features, commissioning a large series to equip the "Genio Pontieri" engineers regiment.

The S.A.I. 121 is built entirely in stainless steel with a light alloy superstructure.

It is exceptionally robust, yet its dimensions and weight are contained, which makes it easy to transport, launch and take out of the water.

Its considerable power and special Schottel propulsion system, with traction propellers that can rotate through 360°, allow remarkable towing and pushing performance and unequalled manoeuvrability.



Hull structure

Its specific applications are:

- towing and pushing of heavy floating structures
- bridge anchoring (Kruppman-Bayley Treadway)
- working platform maintenance.

Its performance characteristics also enable it to be used for:

- recovery work
- removal of obstructions
- materials transport
- ferry services
- rescue work.

The S.A.I. 121 is built to meet the standards of the Italian Naval Register R.I.N.A., which also monitors its production.

Materials and construction systems

The structure is in AISI 316 L stainless steel, welded by the inert gas method.

The superstructure is in UNI 3575 light alloy, welded by the TIG or MIG method or rivetted.

All joints between parts of different materials are suitably insulated with plastic material to prevent electrochemical corrosion.



Assembly line

Hull structure

The hull is constructed from 2.5 and 2 mm. ribbed stainless steel sheets, reinforced with 4 mm flat ribs and spacers.

The stern is 4 mm thick where the propulsion system is mounted.

The deck is in sheet stainless steel, and the cockpit is made from a single sheet of 5 mm aluminium alloy and can be removed to facilitate major maintenance.

The engine hatches and propeller inspection hatches are also in light alloy. Unsinkability is guaranteed by three sealed compartments and appropriately placed special closed-cell buoyancy material.

Central deck-well

In the central deck-well is sited the steering cockpit, which houses the controls, instruments, and bench seating for three under which equipment or light arms (for military versions) can be stowed. The cabin windshield can be lowered to give complete visibility when this is required by manoeuvres.

The instrument panel allows the main functions of the engines and vessel systems to be monitored.

The entire cockpit structure is bolted to the deck by a perimeter flange, which permits easy removal.



THRUSTER's easy loading



Deck and front cockpit

Forward cockpit

A roomy cockpit is sunk into the forward area. It can comfortably carry four persons or a load of 500 Kg. Two lateral safety rails provide adequate handholds. The cockpit also houses the hold for the anchor, ropes etc.

Engine compartment

Amidships are housed:

- two engines, easily accessible for checks and maintenance;
- two independent stainless steel fuel tanks with a capacity sufficient for more than six hours' operation;
- two batteries in metal containers;
- fixed fire extinguisher system;
- bilge pump.

The compartment is closed off by a light alloy structure with wide removable hatches.

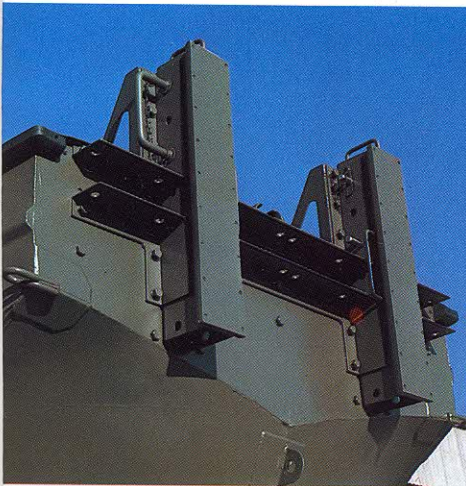
Lateral vents ensure adequate ventilation.

For engine removal or other necessities, the entire cover can be removed.

It is bolted on by a perimeter flange.

Engines

Two AIFO 8061 SM 4T - Turbodiesels
132 hp (97.7 kw) at 2950 rpm
Water cooled, dry weight 527 Kg.
HURTH HBW 400 invertors
24W electrical system.



Pushing knee



Cooling system

The water and oil cooling system for the engines and invertors is of the closed circuit type.

The heat exchangers are installed in a protected position.

Propulsion

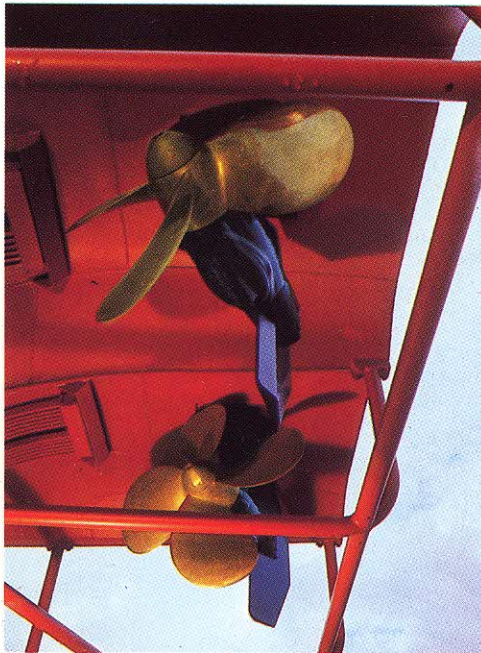
SRP 50/50 Schottel type.

Thrust is provided by two orientable screws, with 360° rotation, driven by robust mechanical transmission.

The propellers are steered simultaneously by the helm, which has a spring brake to maintain thrust direction even when the helm is left free.

The orientation of the screws is shown on the instrument panel.

The screws are protected from collision with submerged obstacles by special tubular structures in aluminium alloy, which can be easily removed.



Schottel orientable propellers

Berth

The vessel is equipped with a steel berth, with wheels that can be folded up or removed.

Surface protection and paintwork

All parts in aluminium alloy are protected against corrosion by chrome treatment or the application of base wash primer and primer.

Small stainless steel parts - nuts, bolts etc; - are chemically proofed.

The submerged part of the hull is protected by two coats of anti-foul.

The internal parts are painted with a coat of wash primer and primer, all other external surfaces are treated with a coat of wash primer, primer, and two NATO coloured coats of infra-red reflecting enamel.

Tread areas are protected with a layer of anti-slip.



Cockpit



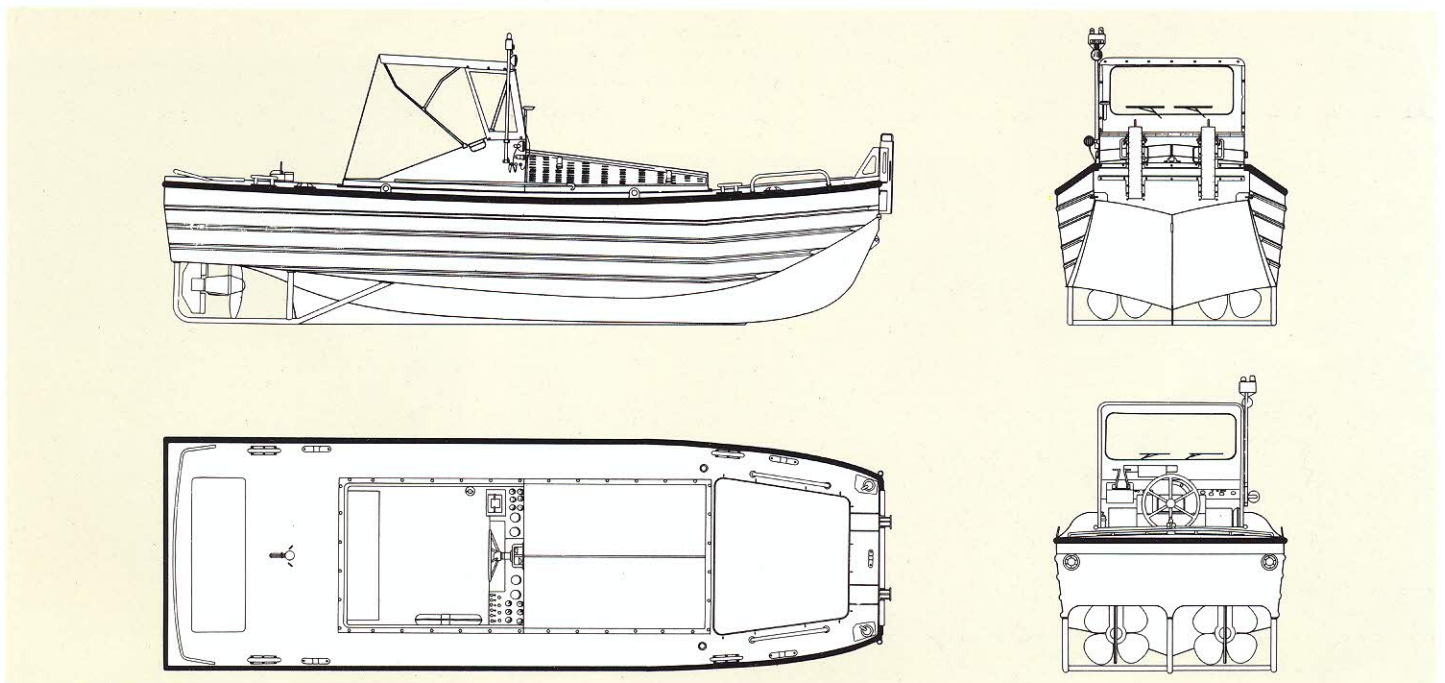
A pair of THRUSTERS at work

Technical data

Length overall	7.45 m	
Maximum width	2.44 m	
Height above waterline	1.22 m	
Maximum draught	0.78 m	
Fully equipped weight	4,450 Kg	
Watertight compartments	3	
Engines: 2 inboard AIFO 8061SM 4T turbodiesels	each.	132 hp (97.7 Kw)
Propulsion: Schottel SRP 50/50 steering traction screws orientable through 360°		
Load	7 persons or 4 persons plus	500 Kg
Tow and thrust values	forward	2,400 Kg
	reverse	1,200 Kg

Controls and instrumentation

- helm wheel
- compass
- engine controls
- inverter controls
- 2 propeller direction indicators
- 2 ignition keys
- 2 engine stops
- 2 rev counters
- 2 engine time clocks
- 2 oil thermometers
- 2 engine oil pressure gauges
- 2 water thermometers
- 2 propeller oil level warning lights
- 2 general visual and acoustic alarms
- 7 electrical switches
- 10 luminous fuse sockets



Accessories and equipment

- perimeter strake fender in high resistance neoprene
- 2 forward cleats with fairleads
- 2 aft cleats with fairleads
- 2 guard rails in forward cockpit
- comprehensive lighting including: running lights, stern light, headlight, depth light, hooded projector
- automatic high-capacity bilge pump
- windshield wiper
- waterproof marine electric acoustic horn
- 2 24v electrical sockets, military type, for battery recharging or emergency starting
- emergency starting lead
- 24v socket
- manual bilge pump
- adjustable rifle rack
- anchor with 40 m chain and cable housed in bow compartment
- 2 mooring ropes
- towing cable
- 2 boathooks
- circular lifebelt with 30 m floating cable to R.I.N.A. standards
- portable Co2 6 Kg fire extinguisher
- 2 anti electrolytic corrosion zincs mounted in the keel
- launching and hoisting crane harness
- 2 waterproof rubberised covers
- ribbed cover
- windshield hood
- log housing
- portable 24v lamp
- fuel can
- instruction and maintenance manual
- box of tools for minor ongoing maintenance
- spares of easily replaceable parts



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