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THE FAST PATROL BOAT (TYPE PAC) PRODUCED BY
DEGGENDORFER SHIPYARD AND EIS..(U) NAVAL INTELLIGENCE
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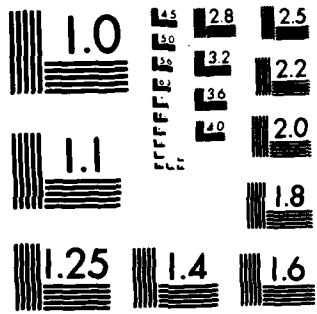
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NAVAL INTELLIGENCE SUPPORT CENTER

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TRANSLATION

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TITLE: THE FAST PATROL BOAT (TYPE PAC) PRODUCED BY
DEGGENDORFER SHIPYARD AND EISENBAU GMBH

DER SCHNELLBOOT-TYP PAC DER DEGEENDORFER
WERFT UND EISENBAU GMBH

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TRANSLATED BY: 9093

SOURCE: MARINE RUNDSCHAU, NO. 7, 1982, PP. 378-381;
GERMAN

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THE TYPE PAC FAST PATROL CRAFT
OF THE DEGGENDORFER WERFT UND EISENBAU GMBH

[Fock, Harald; Der Schnellboot-Typ PAC der Degeendorfer Werft und Eisenbau GmbH; Marine-Rundschau, No. 7, 1982; pp. 378, 380-381; German]

The generally unsatisfactory situation in civilian shipbuilding over the /378* past years, the taking over of shipyards which ceased operation, and the interest growing worldwide in combatants of rather small and medium tonnage have recently led to an involvement of shipyards in the construction of warships or special ships which to date had not appeared at all or only barely in the market. That holds true for the German shipyards as well as for the large-scale plants like Bremer Vulkan, which on the basis of experience with the construction of frigates for the West German Navy developed a number of interesting frigate and corvette projects, and also for the smaller shipyards and even the inland water shipbuilding yards, like the Deggenendorfer Werft und Eisenbau GmbH (DWE) to be discussed, here, which belongs to the Gute-Hoffnungs-Huette concern.

In the fifties to the eighties there came into being partly in cooperation with the Oberwinter Shipyard, in part with the Ruthof Shipyard, whose know-how was bought by the Deggenendorfer Shipyard, a number of small combatants, which the Deggenendorfer yard can today show as a reference list:

- one auxiliary ship for the French Navy (75.0 x 9.5 m, 830 t);
- 16 landing ships for Saudi Arabia (64.25/54.5 x 12 m, 400 t);
- 10 landing boats for Zaire (35.0/25.0 x 11.77 m, 35 t);
- 2 landing boats for the French Navy (25.0 x 7.3 m, 30 t);
- 30 landing boats for Egypt (8.5 m long);
- 2 patrol boats for the Ghanian Navy (35.6 x 6.5 x 1.75 m, 152/170 t, 31 kn (DELA Class);
- 2 patrol boats for the French Navy (10.0 x 7.6 x 1.65 m, 184 t, 25 kn), one of which is today sailing in the Singapore Navy.
- one hydrofoil boat for the German Water Police (10.0 x 2.5 m x 1.15/0.55m, 35 kn).

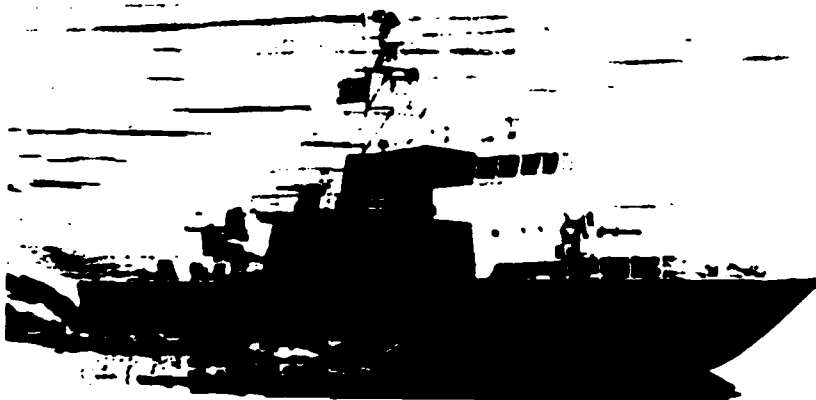
Starting in 1975 the DWE in collaboration with another correspondingly involved German shipyard developed its own activities. Thus there were first built some projects of conventional patrol and fast patrol craft (see Soldat und Technik No. 5/81 and Marine-Rundschau No. 9/1979). All in all, they admittedly gave the impression of being quite carefully conceived and polished, but they soon had to come to the all too-well-known realization that it is not easy for a newcomer to penetrate this market covered for years and decades by internationally broadly dispersed and quite extensive offerings of famous shipyards.

Thus starting in August 1978, after a thorough study of already existing boat types and of general trends, they began to go into an "unconventional" type intensively and to study it in intensive model tests for resistance, especially resistance characteristics. In order to use the relatively simple vee-shaped planing hull boat construction, but at the same time to eliminate their deficiency in sea-keeping qualities, in work covering four

*Pagination in original text indicated by numbers in right margins.



Photos of models of the PAC-Type fast patrol craft



years a deep-vee form with a double keel in the forward section (PES = planing effect ship) was developed, which is said to make the boat very sea-kindly in comparison with the hard-chine constructions now in the market. In August 1981 it was awarded German Patent No. DE 2928634C3.


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Two designs came out of that boat form, Types PAC 37 and PAC 47, for which mainly the newer navies of Africa and Southeast Asia are targeted as markets.

The former market will probably be more favorable, since the Southeast Asian area is already covered in part by branch offices or licensees of established European and North American builders (Luerssen, Vosper-Thornycraft, Tacoma Boat Building).

The now already definitively set PAC 37 has the following technical characteristics:

--length overall	37.50 m
--length at waterline	32.60 m
--molded beam	10.50 m
--molded depth	4.40 m
--draft without propeller	1.90 m
--draft without propeller	3.22 m
--displacement	270 t (approx.)



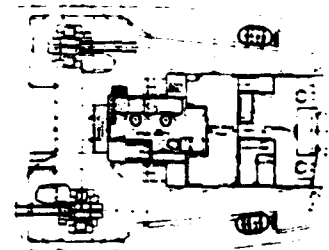
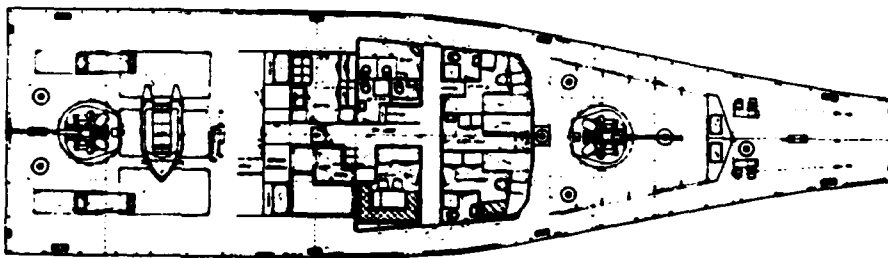
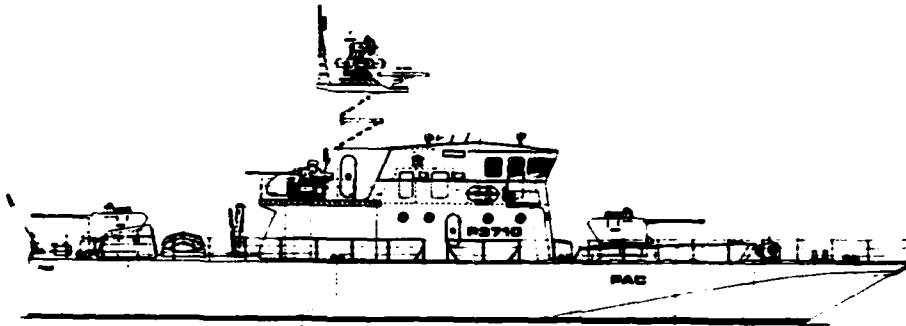
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A broad spectrum of MTU diesels of varying power were offered, which, placed adjacent to each other in a compartment in the after part of the ship, drive the three-bladed fixed-pitch propeller through bevel-gear Z-gearing:

- 3 x MTU 12V538TB91 = 3 x 2750 PSe = 8250 PSe = ca. 15 kn
- 3 x MTU 12V538TB92 = 3 x 3060 PSe = 9180 PSe = ca. 19 kn
- 3 x MTU 16V538TB91 = 3 x 3660 PSe = 10980 PSe = ca. 28 kn
- 3 x MTU 16V538TB92 = 3 x 4080 PSe = 12240 PSe = ca. 32 kn
- 3 x MTU 20V538TB91 = 3 x 4580 PSe = 13740 PSe = ca. 36,5 kn
- 3 x MTU 20V538TB92 = 3 x 5100 PSe = 15300 PSe = ca. 40 kn

PSe = hp
c.a = about

with a 240-t trial displacement (with 50% supplies aboard).



The armament, too, depending on the client's wishes, can be designed differently in the FPB as well as in the FAC version. Alternatives are:

1. For the FPB version:

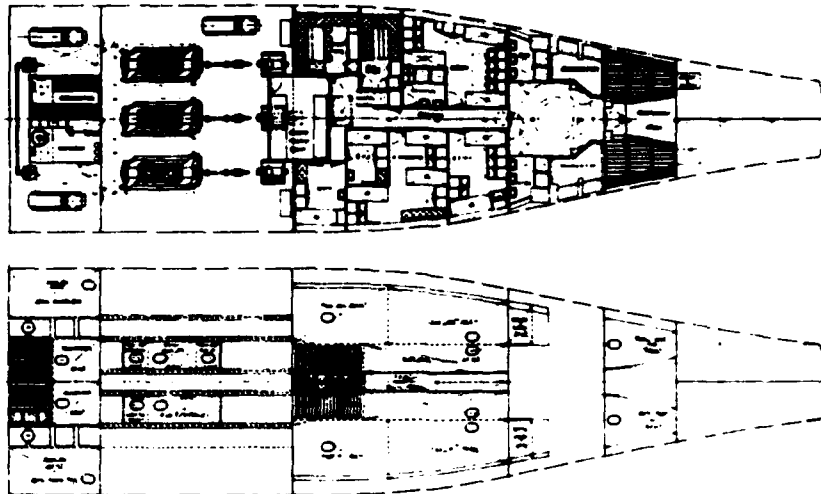
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a. Forward

- one twin 35 mm Oerlikon
- one 40-mm Bofors
- one 50-mm twin Breda
- one 57-mm Bofors
- one 76-mm OT0-Melara

b. On the afterdeck:

- one 35-mm twin Oerlikon
- one 40-mm Bofors
- one 40-mm twin Breda
- one 80-105 on-board helo



2. For the FAC version

a. Forward

- one 40-mm twin Breda
- one 57-mm Bofors
- one 76-mm OT0 Melara

b. On the afterdeck

- one 40-mm Bofors
- one 40-mm twin Breda
- one 57-mm Bofors
- one 76-mm OT0 Melara

c. On the bridge deck

- two 20-mm Oerlikon
- three 30-mm twin Oerlikon

d. Missiles: 2x2 EXOCET SS40, HARPOON, OTOMAT, SEA DART and DAGAIE for self-protection

e. Anti-ship torpedoes AEG Telefunken SS t4

f. A/S version AEG Telefunken UST or 2 x 3 Mk. 32, plus one sonar.

For the electronics and the fire control, Deggendorfer Werft und Eisenbau GmbH collaborate with Hollandse Signaalapparaten (GEMINI type), and for the electrical power supply, with MWM in Mannheim (two diesel generators) and BBC.

The larger PAC 47 Type, planned only as an FAC, is structurally complete. The technical data are:

--length overall	47.55 m
--length at waterline	42.60 m
--molded beam	10.50 m
--molded depth	4.80 m
--draft (100% loaded)	2.27 m (approx.)
--displacement (100% loaded)	440 t.

The engine and armament options correspond to the PAC 37.

The shipyard expects great things from the new design, as does Abeking and Rasmussen with its SAR Type (see Marine Rundschau, No. 4.82):

- a very stable weapons platform
- high cruising speed even in seaway
- small turning radius
- excellent stability values
- pleasant living accommodations for crew and work spaces, since all living and work spaces are concentrated in the midship area. All below-deck spaces can be reached via the midship superstructure.

The broad weapons spectrum should permit use of the combatant in guarding the coast, in fishery protection, and in surveillance of the offshore and economic zones (200-m zone).

There is provision for a 26-man crew (plus accommodations for 2 officers and one enlisted as reserves).

The boat hull made of Shipbuilding Steel 42 in welded construction is subdivided by five transverse bulkheads and two longitudinal bulkheads into eight compartments.

Compartment 1: After peak with rudder and two auxiliary engine spaces, ammunition compartment, exhaust gas pipes, and storage space;

Compartment 2: Engineroom and control space;

Compartment 3. Crew's quarters, messes, sanitary spaces;

Compartment 4: Ammunition compartment, sanitary spaces;

Compartment 5: Stores

Compartment 6. Forepeak with two chain lockers.

The superstructures are made as welded light metal construction and are riveted to the boat's hull. All the structures are fabricated of fire-proof materials.

Navigation, location, and communications equipment meet modern standards.

