

ARCHIVED REPORT

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Type TR-300 Coastal Submarine - Archived 7/96

Outlook

- Abortive design
- No discernable interest in this project

Orientation

Description. Coastal submarine designed for short-range patrol, minelaying and related operations.

Sponsor

Howaldtswerke Deutsche Werft (HDW)
PO Box 146309
D-2300 Kiel 14
Germany
Tel: +49 431 7000
Fax: +49 431 7002312

Contractors

Howaldtswerke Deutsche Werft (HDW)
PO Box 146309
D-2300 Kiel 14
Germany
Tel: +49 431 7000
Fax: +49 431 7002312

Thyssen Noordseewerke GmbH
PO Box 2351
D-2970 Emden
Germany
Tel: +49 21 850
Fax: +49 21 31327

Licensee. No production licenses have been granted.

Status. Available for production.

Total Produced. No orders have been placed.

Platform. None.

Application. This coastal submarine is designed for three primary missions: attack of surface craft, covert operations, and offensive/defensive mine laying operations.

Price Range. The estimated price is between US\$35 million and \$50 million.

Technical Data

Characteristics

Length:

Metric

30 m

US

98.4 ft

Pressure hull diameter:	4 m	13.1 ft
Breadth overall:	5.7 m	18.7 ft
Height:	6.2 m	20.3 ft
Operating depth		
maximum:	100 m	328 ft
minimum:	10 m	32.8 ft
Crew:		2 officers, 6 enlisted
Submerged speed:	13 kt	

Design Features. The TR-300 is powered by a single diesel engine and is equipped with four swim-out torpedo tubes. These torpedo tubes are loaded via the muzzle, with the boat being trimmed by the stern to lift the tubes clear of the surface. No reload torpedoes are carried, but provision is made for the stowage of mines in an external mine girdle. With a depth range from 32 to 328 feet, the designers claim this submarine can enter enemy ports and deploy commandoes to destroy enemy installations.

Operational Characteristics. This submarine is claimed to be smaller and capable of diving deeper than most comparable designs. The submarine is designed to operate in very shallow water as well as medium depths. The maximum submerged speed is 13 knots with a range of 2,000 nautical miles. It can operate for 13 hours on a single battery charge although the speed at which this endurance can be obtained is not disclosed.

Variants/Upgrades

There are no variants or upgrades to this submarine.

Program Review

Background. When Germany began to build submarines in the early 1960s, IKL designed the Type 205 and Type 206. These were derived from the German Second World War Type XXIII U-boat. Both classes were very small, at 420 tons and 460 tons, respectively. Submarines of this type were exported to Norway and Denmark. These, together with the boats sold to the German Navy, are showing their age and will require replacement during the 1990s. The submarines designed to meet this requirement, the Norwegian Ula class and the German Type 212, are much larger and substantially more expensive.

HDW believed that this upward cost and size trend was leaving a market void for coastal and harbor defense submarines. They therefore prepared an updated and modernized version of the Type 205 design, exploiting more advanced design technology. The new design was

released late in 1990 in an attempt to determine if a market for submarines in this category really existed.

During the course of 1993, Forecast International was able to discuss a variety of submarine projects with HDW. These discussions confirmed that the TR-300 design had not been developed beyond an initial concept and its publicity had simply been to determine the acceptability of the concept. The result was a resounding negative. There has been no real interest in the design and no orders have been received.

This design has been mentioned at odd intervals at a variety of displays and exhibitions since that time, but there remains no long-term emphasis on promoting the product. It appears that these references are simply a process of continuing to test the water so that the designers would be aware of any upsurge in interest in the basic design.

Funding

This is a company-funded venture.

Analysis. A number of otherwise promising defense programs have had their prospects blighted by becoming identified with a narrow market niche when they were intended for much wider roles. The TR-300 fell into this trap. The continual reference to the design as a "mini-sub" has led to it being identified as a midget submarine, a

category of warship rightly regarded with distaste by most professional navies. This perception of the TR-300 as being a somehow revolutionary design or of its appearance being a "shock" has also done grave disservice to the class. Such overheated evaluations do little to commend a design to those who have to perform an

objective evaluation of the craft. In fact, the TR-300 is a modernized and upgraded development of the proven Type 205 coastal submarine and should be considered as such.

The driving factor behind TR-300 sales, if any, will be tactical, not economic. The design is not cost-effective in comparison with a larger submarine and offers strictly limited capability at a cost of between 50 and 75 percent of larger designs. The key point will be whether a nation has the combination of brown water conditions and a close-range threat to its interests that will make the procurement of submarines capable of operating in those conditions essential. These conditions were prevalent in

the Baltic during the 1950s to 1970s and resulted in the design of the Type 205. Outside this area, the opportunities are very few indeed. Possibly, only the Persian Gulf fits the description.

The limited efficiency inherent in a small hull, a small accessible market and restricted operational flexibility make for few sales. There is considerable evidence that HDW is not pursuing this design. This suggests that the response to the initial introduction of the design was such that the company does not believe that a viable market for the product exists. Such a market may emerge during the 1990s, but the signs do not appear promising.

Recent Contracts

No contracts have been awarded.

Timetable

1990

TR-300 submarine introduced

Worldwide Distribution

No submarines of this type exist.

Forecast Rationale

An objective and informed analysis of this design leads to the conclusion that few, if any, sales can reasonably be expected. While a number of countries are expected to establish or expand their submarine fleets, the current situation is a buyer's market, with large numbers of new and secondhand boats available at very low cost. When establishing a fleet, the emphasis will be on acquiring craft suitable for training a generation of submarine officers, and this is one role for which the TR-300 is resoundingly unsuitable.

Very small submarines have never lived up to the technical and military promises made by their promoters. Although the TR-300 is properly a coastal submarine rather than a midget, it still suffers from all the limitations inherent in small size. Although it does offer small financial economies over a larger hull, these will not be sufficient to commend it to purchasers. It is basically a good idea at the wrong time. Unless there is strong evidence to suggest that a real market may develop, this report will be discarded next year.

Ten-Year Outlook

No production is forecast.

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