

# TYPE II U-BOAT

## BRIEFING

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## Key Information

<b>Country of Origin:</b>	Germany
<b>Manufacturers:</b>	Deutsche Werke, Germaniawerft, Flender-Werke
<b>Major Variants:</b>	Type IIA, Type IIB, Type IIC, Type IID
<b>Role:</b>	Coastal submarine patrol boat and minelayer
<b>Operated by:</b>	Kriegsmarine
<b>First Laid Down:</b>	11 February 1935
<b>Last Completed:</b>	29 January 1941
<b>Units:</b>	<i>U1-U24, U56-U63, U120-121, U137-152</i>

## Overview

Following the First World War, Germany had been stripped of her *Unterseeboot* (U-boat) fleet by the Treaty of Versailles. In the years between the wars, whilst the rest of the world argued about arms limitation, Germany quietly began a programme to develop and rebuild her armed forces. The pace of this accelerated with Hitler's rise to power, and the first German-built U-boat since the end of World War One (the Type II) was laid down on 11 February 1935. Conscious that the world would see this as a major step towards rearmament, Hitler reached an agreement with Britain to build a navy up to 35% of the size of the British Royal Navy. This included a provision to build submarines to match that allowed to the British by international treaty, effectively allowing Germany a submarine fleet equal to the largest in the world. This agreement was signed on 18 June 1935, and the first of the new U-boats, *U1*, was commissioned just 11 days later.

The Type II U-boat was designed as a coastal boat, too small to undertake sustained operations far away from the home support facilities. Its primary role was found to be in the training schools, preparing new German naval officers for command.

The boat had a single hull, with no watertight subdivision within the single crew compartment. There were 3 torpedo tubes forward (none aft), with space for another 2 torpedoes inside the pressure hull for reloads. 12 mines could be carried in place of the torpedoes. No main deck gun was provided, and a single 20mm gun was provided primarily for defence against aircraft.

Space inside the boat was limited. The two spare torpedoes extended from just behind the torpedo tubes to just in front of the control room, and most of the 24-man crew lived in this forward area around the torpedoes, sharing 12 bunks. Four bunks were also provided aft of the engines for the engine room crew. Cooking and sanitary facilities were basic, and in this environment long patrols were very arduous.

The boat had a diesel-electric propulsion system, with two diesel engines developing 700 hp, sufficient to give a maximum surface speed of 13 knots. 12 tons of diesel fuel was provided, allowing a maximum range of 1,600 miles at 8 knots. When submerged, two electric motors (running off batteries) provided 360 hp, giving a maximum submerged speed of 6.9 knots. The batteries allowed 35 miles submerged at 4 knots. Later variants had larger electric engines, larger battery capacity, and / or increased fuel capacity.

The maximum depth that submarines could dive to cannot be stated with any accuracy. Submarines have a design depth limit (in the case of the Type II this was 150 metres), however in practice the actual maximum depth for each submarine varied, depending primarily on the quality of construction and the degree of damage to the hull. On one pre-war dive *U12*'s hull cracked at 104 metres, leading to urgent modifications to the Type II fleet.

Advantages of the Type II boat were related to its size, namely its ability to dive more quickly than the larger boats, the low conning tower (making them more difficult to see) and ability to work in shallow water. Disadvantages were also size-related, such as the shallower maximum depth, low number of torpedoes carried, cramped living conditions and low range.

Most of these vessels only saw operational service during the early years of the war (several future 'aces', such as Erich Topp and Joachim Schepke, began their careers by scoring well in these boats), thereafter remaining in training bases. Some, however, were transferred to the Black Sea for use against Russia. This involved stripping the boats down to just a hull, transporting them by barge and road vehicle to Linz, and reassembling them to begin work in their new area.

In contrast with other German submarine types, losses were light. This, of course, reflects their use as training boats, although accidents during training accounted for several vessels.

These boats were a first-step towards rearmament, intended to provide Germany with practical experience in submarine construction and operation, and thus to lay the foundation for the larger boats that were to follow. They were limited by their small size, which resulted in a small operational area and minimal offensive capability, however these limitations were a deliberate choice and they were seen to be very effective within their intended role.

## Units

Variant	Boat	Built	Notes
Type IIA	<i>U1-U6</i>	6	<p>These vessels were ordered on 2 February 1935 and were completed by 7 September 1935. In total, they made 17 operational war sorties, sinking three merchant ships and one submarine with torpedoes, as well as two with scuttling charges, for 7,481 grt.</p> <p>Three were lost, <i>U1</i> to a mine, with <i>U2</i> and <i>U5</i> being lost in training accidents.</p>
Type IIB	<i>U7-U24</i> <i>U120-U121</i>	20	<p>The major change in the Type IIB was an increase in length, providing space for an additional nine tons of diesel fuel (for a total of 21 tons, 75% extra than the Type IIA) and greatly extending the radius of operations. In addition, more battery capacity was provided, increasing the underwater range by 23%.</p> <p>These vessels were ordered between 20 July 1934 and 2 February 1935, and were completed by 10 October 1936 (except <i>U120</i> and <i>U121</i>, which were initially intended for the Royal Yugoslav Navy but were taken over by the <i>Kriegsmarine</i> at the start of the Second World War). In total, they made 165 operational war sorties, sinking 71 merchant ships with torpedoes or gunfire for 162,241 grt, as well as one submarine, three minesweepers, two destroyers and four small craft. A further 17 merchant ships totalling 49,276 grt were lost to mines laid by these boats, as well as one submarine and two small vessels, and the light cruiser <i>HMS Belfast</i> was under repair for two years after having her back broken by a mine laid by <i>U21</i>.</p> <p>Seven submarines were lost – <i>U12</i> to a mine; <i>U9</i> bombed in port; <i>U13</i> and <i>U16</i> to enemy depth charges; <i>U7</i> to a training accident; <i>U15</i> to a collision; <i>U22</i> to unknown causes. <i>U18</i> was also lost in a training accident, however she was subsequently raised and repaired.</p>
Type IIC	<i>U56-U63</i>	8	<p>The Type IIC was further lengthened, with more powerful electric motors, and increased fuel oil capacity over the Type IIB (23 tons fuel oil).</p> <p>These vessels were ordered between 17 June 1937 and 21 July 1937, and were completed by 18 January 1940. In total, they made 73 operational war sorties, sinking 49 merchant ships (including an armed merchant cruiser) with torpedoes or scuttling charges for 177,046 grt, as well as one destroyer. A further three ships totalling 6,202 grt, and one minesweeper, were lost to mines laid by these vessels.</p> <p>Two submarines were lost – <i>U56</i> bombers whilst in port, and <i>U63</i> to depth charges. <i>U57</i> was lost in a collision, however she was later raised and returned to service (she was involved in the trials of the schnorkel).</p>
Type IID	<i>U137-U152</i>	16	<p>The Type IID was the final development of this type. She was again lengthened, with further increased fuel and battery capacity over the Type IIC (38 tons fuel oil total, and a 33% increase in underwater range). Saddle tanks (partially used for fuel oil) were fitted to the upper half of the outside of the hull.</p> <p>These vessels were ordered on 25 September 1939 and were completed by 29 January 1941. In total, they made 36 operational war sorties, sinking 25 merchant ships with torpedoes for 107,360 grt, as well as 3 submarines.</p> <p>Three of these vessels were lost – <i>U138</i> and <i>U147</i> to depth charges, and <i>U144</i> to a submarine.</p>

## Specifications

	Type IIA	Type IIB	Type IIC	Type IID
<b>Dimensions</b>				
Displacement				
- Surfaced	254 tons	279 tons	291 tons	314 tons
- Submerged	303 tons	328 tons	341 tons	364 tons
- Total	381 tons	414 tons	435 tons	460 tons
Length				
- Overall	40.90 m (134 ft 2 in)	42.70 m (140 ft 1 in)	43.90 m (144 ft)	43.97 m (144 ft 3 in)
- Pressure hull	27.80 m (91 ft 2 in)	28.20 m (92 ft 6 in)	29.60 m (97 ft 1 in)	29.80 m (97 ft 9 in)
Beam				
- Overall	4.08 m (13 ft 5 in)	4.08 m (13 ft 5 in)	4.08 m (13 ft 5 in)	4.92 m (16 ft 2 in)
- Pressure hull	4.00 m (13ft 1 in)	4.00 m (13 ft 1 in)	4.00 m (13 ft 1 in)	4.00 m (13 ft 1 in)
Draft (Surfaced)	3.83 m (12ft 7 in)	3.90 m (12ft 10 in)	3.82 m (12 ft 6 in)	3.93 m (12ft 11 in)
Height	8.60 m (18ft 3 in)	8.60 m (28 ft 3 in)	8.40 m (27 ft 7 in)	8.40 m (27 ft 7 in)
<b>Weapons</b>				
Guns				
- Main	None	None	None	None
- Other <sup>[Note 1]</sup>	1 x 20 mm (0.79 in)	1 x 20 mm (0.79 in)	1 x 20 mm (0.79 in)	1 x 20 mm (0.79 in)
Torpedo Tubes				
- Forward	3	3	3	3
- Aft	None	None	None	None
Torpedo Reloads				
- Forward	2	2	2	2
- Aft	None	None	None	None
- Deck	None	None	None	None
Mines <sup>[Note 2]</sup>	12	12	12	12
<b>Miscellaneous</b>				
Propulsion				
- Surfaced	700 hp	700 hp	700 hp	700 hp
- Submerged	360 hp	360 hp	410 hp	410 hp
Speed				
- Surfaced	13.0 kts	13.0 kts	12.0 kts	12.7 kts
- Submerged	6.9 kts	7.0 kts	7.0 kts	7.4 kts
Dive Depth <sup>[Note 3]</sup>	150 m (490 ft)	150 m (490 ft)	150 m (490 ft)	150 m (490 ft)
Compliment	24	24	24	24

Note 1: Four 20 mm guns (2 x 2) were provided in 1942.

Note 2: Mines are an alternative to torpedoes, not in addition to them

Note 3: Maximum diving depth is approximate