

= Scharnhorst @-@ class cruiser =

The Scharnhorst class was the last traditional class of armored cruisers built by the Kaiserliche Marine . The class comprised two ships , Scharnhorst and Gneisenau . They were larger than the Roon @-@ class cruisers that preceded them ; the extra size was used primarily to increase the main armament of 21 cm (8 @. @ 2 inch) guns from four to eight . The ships were the first German cruiser to reach equality with their British counterparts . The ships were named after 19th century Prussian army reformers , Gerhard von Scharnhorst and August von Gneisenau .

Built for overseas service , Scharnhorst and Gneisenau were assigned to the East Asia Squadron in 1909 and 1910 , respectively . Scharnhorst relieved the old armored cruiser Fürst Bismarck as the squadron flagship , which had been on station since 1900 . Both ships had short careers ; shortly before the outbreak of World War I , the ships departed the German colony at Tsingtao . On 1 November 1914 , the ships destroyed a British force at the Battle of Coronel and inflicted upon the Royal Navy its first defeat since the Battle of Plattsburgh in 1814 . The East Asia Squadron , including both Scharnhorst @-@ class ships , was subsequently annihilated at the Battle of the Falkland Islands on 8 December .

= = Design = =

= = = General characteristics = = =

The ships of the class were 144 @. @ 6 meters (474 ft) long overall , and 143 @. @ 8 m (472 ft) long at the waterline . They had a beam of 21 @. @ 6 m (71 ft) , a draft of 8 @. @ 4 m (27 ft 7 in) , and displaced 11 @, @ 616 metric tons (11 @, @ 433 long tons ; 12 @, @ 804 short tons) standard , and 12 @, @ 985 t (12 @, @ 780 long tons ; 14 @, @ 314 short tons) at full load . The ships ' hulls were constructed of transverse and longitudinal steel frames , over which the outer hull plating was riveted . The vessels had 15 watertight compartments and a double bottom that ran for 50 % of the length of the hull .

The ships had a standard crew of 38 officers and 726 enlisted men . Scharnhorst , as the squadron flagship , had a larger crew , including an additional 14 officers and 62 men . Gneisenau , when serving as the squadron second command flagship , had an extra staff of 3 officers and 25 men . The ships carried a number of smaller vessels , including two picket boats , two launches , one pinnace , two cutters , three yawls , and one dinghy .

= = = Machinery = = =

The Scharnhorst @-@ class ships used the same powerplant as in the preceding Roon class : three 3 @-@ cylinder triple expansion engines . Each engine drove a single propeller ; the center shaft on Scharnhorst was 4 @. @ 7 m (15 ft) in diameter while the outer two were 5 m (16 ft) wide . Gneisenau 's screws were slightly smaller , at 4 @. @ 6 m (15 ft) wide on the center shaft and 4 @. @ 8 m (16 ft) on the outer pair . The triple expansion engines were supplied with steam by 18 coal @-@ fired marine @-@ type boilers with 36 fire boxes . The engines were designed to provide 26 @, @ 000 indicated horsepower , though on trials they achieved higher figures ? 28 @, @ 782 ihp for Scharnhorst and 30 @, @ 396 ihp for Gneisenau . The ships were rated at a top speed of 22 @. @ 5 knots (41 @. @ 7 km / h ; 25 @. @ 9 mph) , though on trials Scharnhorst steamed at a maximum of 23 @. @ 5 knots (43 @. @ 5 km / h ; 27 @. @ 0 mph) , while Gneisenau ran at 23 @. @ 6 knots (43 @. @ 7 km / h ; 27 @. @ 2 mph) . The vessels carried 800 t (790 long tons ; 880 short tons) of coal normally , though they were capable of storing up to 2 @, @ 000 t (2 @, @ 000 long tons ; 2 @, @ 200 short tons) of coal . This provided a maximum range of 4 @, @ 800 nautical miles (8 @, @ 900 km ; 5 @, @ 500 mi) at a cruising speed of 14 knots (26 km / h ; 16 mph) . The ships had a single rudder .

The vessels also carried the same electrical plant as in the older Roon @-@ class ships . It

consisted of four turbo @-@ generators that delivered 260 kilowatts at 110 volts . The Scharnhorst @-@ class ships were the last cruisers built by Germany to be equipped with generators that put out power at 110 volts ; the subsequent design , Blücher , had generators that ran at 225 volts .

== = Armament == =

The ships ' main battery armament consisted of eight 21 cm (8 @. @ 3 in) SK L / 40 guns , four in twin gun turrets , one fore and one aft of the main superstructure , and the remaining four were mounted in single wing turrets . The 21 cm guns fired a 108 kg (238 lb) armor @-@ piercing projectile at a muzzle velocity of 780 metres per second (2 @, @ 600 ft / s) . The guns had a rate of fire of between 4 ? 5 rounds per minute . The guns were supplied with a total of 700 rounds . The guns mounted in the twin turrets could elevate to 30 degrees , which enabled a maximum range of 16 @, @ 300 metres (17 @, @ 800 yd) . The single turrets could only elevate to 16 degrees , and so their range was correspondingly lower at 12 @, @ 400 metres (13 @, @ 600 yd) . The twin turrets could train to approximately 150 degrees in either direction from the centerline .

Secondary armament included six 15 cm (5 @. @ 9 in) SK L / 40 guns in MPL casemates . These guns had a fired armor @-@ piercing shells at a rate of 4 ? 5 per minute . The ships carried 170 shells per gun , for a total of 1 @, @ 020 rounds total . The guns could depress to ? 7 degrees and elevate to 20 degrees , for a maximum range of 13 @, @ 700 metres (15 @, @ 000 yd) . They were manually elevated and trained .

The ships were also armed with eighteen 8 @. @ 8 centimetres (3 @. @ 5 in) guns mounted in casemates . They fired 10 kg (22 lb) shells at a muzzle velocity of approximately 620 metres per second (2 @, @ 000 ft / s) . The ship carried 150 shells per gun , for a total of 2 @, @ 700 rounds . They were capable of engaging targets out to 11 @, @ 000 m (12 @, @ 000 yd) . As with the larger 15 cm guns , the 8 @. @ 8 cm weapons were manually elevated and trained .

As was customary for warships of the period , the Scharnhorst @-@ class ships were equipped with four 45 cm (18 in) submerged torpedo tubes . One was mounted in the bow , one on each broadside , and the fourth was placed in the stern . The ships were supplied with a total of 11 torpedoes . The weapons were the C / 03 type , which weighed 662 kilograms (1 @, @ 459 lb) and carried a 176 kilograms (388 lb) high @-@ explosive warhead . At a speed of 31 knots (57 km / h ; 36 mph) , the torpedoes had an effective range of 1 @, @ 500 metres (1 @, @ 600 yd) ; when set at a slower speed of 26 knots (48 km / h ; 30 mph) , the weapons could hit targets out to twice the distance , at 3 @, @ 000 metres (3 @, @ 300 yd) .

== = Armor == =

As was the standard for German warships , the ships of the Scharnhorst class were protected by Krupp armor . They had an armor belt that was 150 mm (5 @. @ 9 in) thick in the central portion of the ship , where the most important areas were located . The belt decreased to 80 mm (3 @. @ 1 in) on either end of the central citadel , and down to nothing at the bow and stern . The entire belt was backed with teak planking . The main armored deck ranged in thickness from 60 mm (2 @. @ 4 in) over critical areas and down to 35 mm (1 @. @ 4 in) elsewhere . The deck sloped down to the belt ; this portion was between 40 ? 55 mm (1 @. @ 6 ? 2 @. @ 2 in) thick . The forward conning tower had 200 mm (7 @. @ 9 in) thick sides and a 30 mm (1 @. @ 2 in) thick roof . The rear conning tower was less well @-@ armored , with sides that were only 50 mm (2 @. @ 0 in) thick and a roof that was 20 mm (0 @. @ 79 in) thick . The main battery gun turrets had 170 mm (6 @. @ 7 in) thick sides and 30 mm (1 @. @ 2 in) thick roofs , while the amidships guns were protected with 150 mm (5 @. @ 9 in) thick gun shields and 40 mm (1 @. @ 6 in) thick roofs . The 15 cm guns were armored with 80 mm (3 @. @ 1 in) thick shields .

== Ships ==

= = Service history = =

Upon commissioning , both ships of the class were assigned to the German East Asia Squadron , with Scharnhorst serving as Admiral Maximilian von Spee 's flagship . Scharnhorst and Gneisenau were regarded as well @-@ trained vessels ; both ships won awards for their excellence at gunnery . At the start of World War I , the two ships were in the Caroline Islands on a routine cruise ; the rest of von Spee 's squadron was dispersed around the Pacific . The declaration of war by Japan on Germany convinced von Spee to consolidate his force with the cruisers Leipzig and Dresden from the American station , and head for Chile to refuel . The flotilla would then attempt to return to Germany via the Atlantic Ocean . Admiral von Spee also intended to attack the three British cruisers under the command of Admiral Christopher Cradock , and any British shipping encountered . On 22 September , Scharnhorst and Gneisenau approached the island of Papeete in French Polynesia with the intention of seizing the coal stockpiled in the harbor . The ships conducted a short bombardment that resulted in the sinking of the old gunboat Zélée . However , von Spee feared that the harbor had been mined , and decided to avoid the risk . The French had also set fire to the coal stocks to prevent the Germans from using the coal .

= = = Battle of Coronel = = =

At approximately 17 : 00 on 1 November 1914 , the East Asia Squadron encountered Cradock 's ships off Coronel . Because the German ships had an advantage in speed , von Spee was able to keep the distance to 18 kilometers , before closing to 12 km (1 @. @ 2 × 10¹³ nm) to engage the British flotilla at 19 : 00 . Scharnhorst hit Good Hope some 34 times ; at least one of the shells penetrated Good Hope 's ammunition magazines , which resulted in a tremendous explosion that destroyed the ship . The light cruiser Nürnberg closed to point @-@ blank range to attack Monmouth ; after a severe pummeling , Monmouth sank as well . The British light cruiser Glasgow and the auxiliary cruiser Otranto both escaped under the cover of darkness . First Sea Lord Jackie Fisher remarked that it was " the saddest naval action of the war . " The defeat was the first to be inflicted on the Royal Navy since the 1814 Battle of Plattsburgh . After news of the battle reached Kaiser Wilhelm II in Berlin , he ordered 300 Iron Crosses to be awarded to the men of von Spee 's squadron . After refueling in Valparaíso , the East Asia Squadron departed for the Falkland Islands , in order to destroy the British wireless transmitter located there .

= = = Battle of the Falkland Islands = = =

Some six hours after news of the battle reached England , Admiral Fisher ordered Admiral John Jellicoe , the commander of the Grand Fleet , to detach the battlecruisers Invincible and Inflexible to hunt down the German ships . Vice Admiral Doveton Sturdee was placed in command of the flotilla , which also included the armored cruisers Carnarvon , Cornwall , Defence , and Kent , and the light cruisers Bristol and Glasgow , which had survived Coronel . Sturdee 's ships reached the Falklands by the morning of 8 December , shortly before von Spee 's squadron arrived . The British spotted the East Asia Squadron at 09 : 40 ; von Spee was unaware that the British had sent the two battlecruisers , and when he observed them , he ordered his ships to withdraw . Despite the head start , the fast battlecruisers quickly caught up with the worn @-@ out German ships , which had just completed a 16 @, @ 000 mile voyage without repairs .

At approximately 13 : 20 , the battlecruisers opened fire at a range of 14 kilometres (8 @. @ 7 mi) . After a two @-@ hour @-@ long battle , Scharnhorst was dead in the water and listing heavily . The ship was sunk shortly thereafter . Gneisenau had been hit more than 50 times at close range ; the crew gave three cheers for the Kaiser before the vessel sank . Nürnberg and Leipzig were also sunk , though Dresden managed to escape temporarily , before she too was destroyed off Juan Fernández Island . Some 2 @, @ 200 men were killed , among them Admiral von Spee .