= German FK cruiser designs =

The German Imperial Navy (Kaiserliche Marine) created a series of fleet cruiser designs ? designated Flottenkreuzer ? in 1916 to follow the Cöln @-@ class cruisers ordered in 1915 . They were initially intended to favor high speed for reconnaissance over the heavier gun armament of the Cöln class , though by the final iterations , they were as powerful as the earlier class . The design staff ultimately drew up five different designs : FK 1 , FK 1a , FK 2 , FK 3 , and FK 4 . The proposals ranged in size from 3 @,@ 000 metric tons (3 @,@ 000 long tons ; 3 @,@ 300 short tons) to 7 @,@ 500 t (7 @,@ 400 long tons ; 8 @,@ 300 short tons) designed displacement and were armed with a main battery of between five and eight 15 cm (5 @.@ 9 in) guns . Each proposed design grew in size over the preceding draft , as the weaponry and propulsion systems were increased . None of the designs were built , owing to shifting construction priorities in the German Navy in the last year of World War I.

= = FK 1 and FK 1a = =

By 1916 , thirteen German light cruisers had been lost in the course of World War I. To replace them , the Kaiserliche Marine ordered ten new cruisers of the Cöln class . The next design , under the provisional name FK 1 , or Flottenkreuzer (Fleet cruiser) , was prepared in 1916 . The design , which emphasized the reconnaissance role and high speed over combat power , was based on the British C @-@ class cruisers at the request of Kaiser Wilhelm II . A modified design , named FK 1a , was a slightly larger vessel .

FK 1 was 128 meters (420 ft) long at the waterline and 130 m (430 ft) long overall . The design had a beam of 11 @.@ 6 m (38 ft) ; its forward draft was 4 @.@ 9 m (16 ft) and the aft draft was 4 @.@ 1 m (13 ft) . The ship would have had a double bottom of approximately 52 percent of the length of the hull , and fifteen watertight compartments . The hull was constructed with longitudinal steel frames . As designed , the ship would have had a displacement of 3 @,@ 000 metric tons (3 @,@ 000 long tons ; 3 @,@ 300 short tons) , with a full load combat displacement of 3 @,@ 800 t (3 @,@ 700 long tons ; 4 @,@ 200 short tons) . The modified FK 1a was slightly larger , at 131 meters (430 ft) long at the waterline and 136 m (446 ft) long overall . The modified design had a beam of 12 @.@ 4 m (41 ft) and a draft of 4 @.@ 6 m (15 ft) . The ship 's hull would have been constructed as in FK 1 , with the same number of watertight compartments and extent of double bottom . As designed , the ship would have had a displacement of 4 @,@ 025 metric tons (3 @,@ 961 long tons ; 4 @,@ 437 short tons) , with a full load combat displacement of 4 @,@ 850 t (4 @,@ 770 long tons ; 5 @,@ 350 short tons) .

Both designs would have been powered by two sets of Marine @-@ type steam turbines that each drove a three @-@ bladed screw 3 @.@ 5 m (11 ft) wide in diameter . FK 1 would have been equipped with five Marine @-@ type oil @-@ fired watertube boilers , while FK 1a would have had improved double @-@ ended models . The propulsion system of FK 1 was rated at a maximum of 48 @,@ 000 shaft horsepower (36 @,@ 000 kW) for a top speed of 32 knots (59 km / h ; 37 mph) . The improved engines of FK 1a were rated at 52 @,@ 000 shp (39 @,@ 000 kW) and a maximum speed of 33 kn (61 km / h ; 38 mph) . The designs carried up to 1 @,@ 000 t (980 long tons ; 1 @,@ 100 short tons) and 1 @,@ 150 t (1 @,@ 130 long tons ; 1 @,@ 270 short tons) of fuel oil , respectively , which permitted a cruising radius of 2 @,@ 800 nautical miles (5 @,@ 200 km ; 3 @,@ 200 mi) at a speed of 17 kn (31 km / h ; 20 mph) . Both designs were equipped with three diesel generators that produced 300 kilowatts (400 hp) at 220 volts . Steering was controlled by a single rudder .

The armament of both designs consisted of five 15 cm SK L / 45 guns in single mounts , one forward , two abreast of the conning tower , and two in a superfiring pair aft of the rear superstructure . The 15 cm gun fired a 45 @-@ kilogram (99 lb) shells at a muzzle velocity of 835 meters per second (2 @,@ 740 ft / s) . FK 1 and FK 1a were supplied with 500 and 650 shells for their main batteries , respectively . The guns had a range of 17 @,@ 600 m (57 @,@ 700 ft) . Both designs were equipped with a pair of 8 @.@ 8 cm SK L / 45 anti @-@ aircraft guns , mounted on

the centerline amidships . The guns were equipped with 100 rounds of ammunition each . These guns fired a 10 kg (22 lb) shells . Both ships would have carried four 60 cm (24 in) torpedo tubes mounted on the deck in swivel launchers . FK 1a was also equipped with 100 mines . Both designs called for a crew of 15 officers and 342 enlisted men .

= = FK 2 , FK 3 , and FK 4 = =

Over the course of the design process that continued through 1916 , the size of the projected cruisers increased as the navy added new design requirements . This resulted in the FK 2 design . The length increased to 144 m (472 ft) overall and 139 m (456 ft) at the waterline . Their beam increased to 13 m (43 ft) , as did their draft , to 5 @.@ 5 m (18 ft) . Their displacement correspondingly rose to 4 @,@ 500 t (4 @,@ 400 long tons ; 5 @,@ 000 short tons) at normal load and 5 @,@ 350 t (5 @,@ 270 long tons ; 5 @,@ 900 short tons) at combat load , significantly greater than the original design . The FK 2 design was armed with five 15 cm SK L / 45 guns and two 8 @.@ 8 cm SK L / 45 anti @-@ aircraft guns . It was to carry the same 60 cm torpedo tubes in twin mounts as the earlier designs . The design retained the same propulsion system as the earlier designs , but with an improved engine type and an additional boiler , which produced an estimated 60 @,@ 000 shp (45 @,@ 000 kW) for a top speed of 32 knots . Range was to have been 2 @,@ 800 miles at 17 knots , as in the original design .

The next iteration , FK 3 , brought even more increases . Displacement rose to 6 @,@ 000 t (5 @,@ 900 long tons ; 6 @,@ 600 short tons) normal and 6 @,@ 900 t (6 @,@ 800 long tons ; 7 @,@ 600 short tons) full load , double that of the original FK design . Length was 155 m (509 ft) at the waterline and 159 m (522 ft) overall , and the beam was 14 @.@ 2 m (47 ft) . The armament was also augmented by an additional two 15 cm and 1 8 @.@ 8 cm gun . Since the size of the ship had increased , a more powerful propulsion system was necessary ; a third set of turbines was added , and the number of boilers was increased to thirteen . This produced 70 @,@ 000 shp (52 @,@ 000 kW) , for the same speed and range figures as in the previous designs .

The final design , FK 4 , was larger still . The standard displacement was 7 @,@ 500 t (7 @,@ 400 long tons ; 8 @,@ 300 short tons) , and at combat load , this rose to 8 @,@ 650 t (8 @,@ 510 long tons ; 9 @,@ 530 short tons) . The projected cruiser would have been 170 m (560 ft) long at the waterline , with a beam of 15 @.@ 4 m (51 ft) and a draft of 6 m (20 ft) . The armament was increased again , with an additional 15 cm gun . The ship 's propulsion system would have included six coal @-@ fired boilers and nine oil @-@ fired models .

Ultimately , none of these designs were ever built , much like other late @-@ war German warship designs , such as the L 20 ? @-@ type battleships and the Ersatz Yorck @-@ class battlecruisers . The German shipbuilding effort largely abandoned surface warship construction and instead focused on U @-@ boat construction in the final years of the war .