

= M @-@ class cruiser =

The M @-@ class cruisers were a class of light cruisers planned , but never built , by Nazi Germany 's Kriegsmarine before World War II . The ships were designed for commerce raiding in the Atlantic Ocean . The design for the first four ships suffered from a number of problems , and so the fifth and sixth ships were substantially redesigned .

The name of the class is taken from the letter designating the first projected unit . As long as the ships were not named , they were referred to by letters assigned in the chronological order of their planned construction . The first planned unit would have been the thirteenth German cruiser and was therefore listed as cruiser M in the navy 's documents . Had any of the ships been built , the class would have been named after the first completed unit .

= = Development and cancellation = =

The M class was intended for use as a scout for the commerce raiding squadrons envisioned under Plan Z. The ships design process started in 1936 ; the ships were intended for long @-@ range commerce raiding . They were an improvement over previous designs , which suffered from insufficient range to be effective commerce raiders . However , the requirements placed on the design ? high maximum and cruising speeds , long range , heavy armament , and armor sufficient to withstand 15 cm shells , all on a displacement no more than 8 @,@ 000 metric tons ? were deemed impossible by the design staff . In July 1937 , the Oberbefehlshaber der Marine (commander in chief of the navy) requested proposals from both the naval design staff as well as private dockyards . None of the designs by the dockyards were practical , and so the official design , which only met some of the requirements , was chosen .

During further development of the design , serious flaws became apparent , including the weakness of both the main battery and anti @-@ aircraft armament , as well as the insufficiently thick armor protection . The stepped arrangement of the deck armor wasted space and was therefore impractical . The layout of the propulsion system was also problematic ; both turbines were in the same engine room , and therefore each were vulnerable to disabling if the other was damaged . Their crew spaces were also insufficient for long @-@ range cruises . As a result , the design was heavily modified for the last two ships of the class , Q and R. The initial design borrowed on contemporary British and French ships , the Southampton class and La Galissonnière class , respectively . The distribution of the M @-@ class ships ' side armor was the most obvious influence of the Southampton @-@ class design .

The contract for M was assigned to Deutsche Werke in Kiel under the construction number 263 . N followed at the Kriegsmarinewerft in Wilhelmshaven , as number 129 . O ? construction number 606 ? was assigned to Germaniawerft in Kiel , but on 8 August 1939 , the contract was transferred to the Kriegsmarinewerft . P was also assigned to Germaniawerft , under number 607 . Q was assigned to Schichau in Danzig , and the contract for R was awarded to the Deutsche Werke . Only the keels for M and N were laid ? in 1938 ? but construction was halted on 19 and 21 September 1939 , respectively . Both hulls were broken up on the stocks shortly thereafter .

= = Design = =

= = = General characteristics = = =

The first four M @-@ class ships ? M , N , O , and P ? were 178 meters long at the waterline , and 183 meters long overall . They had a beam of 17 meters and a draft of 5 @.@ 42 meters standard , 7 @.@ 25 meters forward , and 6 @.@ 03 meters aft . The ships had a designed displacement of 8 @,@ 500 metric tons , but displaced 7 @,@ 800 tons at standard load and 10 @,@ 400 tons fully laden . The ships had a crew of 28 officers and 892 men . They were designed to carry one picket boat , a barge , a launch , and two cutters .

The last two ships ? Q and R ? were enlarged versions : 188 meters long at the waterline and 196 m overall . Their beams were 1 meter wider , at 18 meters . The ships ' draft was lower at 5 @. @ 4 meters . The ships were designed to displace 9 @, @ 300 tons , and displaced 8 @, @ 568 tons standard . All six ships were to have steel @- @ made , and up to 85 % welded construction . The design called for fifteen watertight compartments and a double bottom for 78 % of the length of the hull .

All six ships were intended to use two sets of Brown , Boveri , & Co. and Wagner turbines or Marine @- @ type turbines built by Germaniawerft and four MAN double @- @ acting 12 @- @ cylinder two @- @ stroke diesels . Q and R however , was equipped with an additional four diesels , for a total of eight . The turbines were powered by four Wagner ultra @- @ high pressure boilers , designed to put out 58 atmospheres of pressure . The propulsion system drove three screws , although four were considered for Q and R. The ships ' electrical power was supplied by four generators that produced 2 @, @ 400 kW at 220 volts .

= = = Armament and armor = = =

All six ships were armed with the same set of weaponry . The primary armament consisted of eight 15 cm L / 55 quick @- @ firing guns mounted in four twin turrets , in superfiring pairs fore and aft . The guns had a total of 960 shells , for 120 rounds per gun . The 15 cm twin turrets were Drh L. C / 34 mounts ? the same type as those fitted to the Bismarck- and Scharnhorst @- @ class battleships , as well as a number of other designs . The turrets allowed depression to -10 degrees and elevation to 40 degrees , which enabled a maximum range of 22 @, @ 000 m (24 @, @ 000 yd) . The 15 cm guns had a rate of fire of between 6 and 8 45 @. @ 3 kg (100 lb) rounds per minute , at a muzzle velocity of 875 meters per second (2 @, @ 871 ft / s) . The guns used two propellant charges : a 14 @. @ 15 kg (31 @. @ 2 lb) RPC / 38 fore charge and a 23 @. @ 5 kg (52 lb) main charge in a brass cartridge .

The ships carried four 8 @. @ 8 cm L / 76 anti @- @ aircraft guns in two twin turrets , aft of the main superstructure . The 8 @. @ 8 cm guns were supplied with 1 @, @ 600 shells , for 400 rounds per gun . These guns fired 19 @. @ 8 kg (44 lb) high explosive shells at a rate of fire of 15 to 20 rounds per minute and a muzzle velocity of 950 m / s (3 @, @ 117 ft / s) . The guns could elevate to 80 degrees , which allowed them to hit targets flying at 12 @, @ 400 m (40 @, @ 700 ft) . The M @- @ class ships were also equipped with eight 3 @. @ 7 cm AA guns in twin mounts centered on the superstructure . They had a total of 9 @, @ 600 shells . The anti @- @ aircraft weaponry was supplemented with four 2 cm guns , each of which had 2 @, @ 000 rounds . The ships were also armed with eight deck @- @ mounted torpedo tubes and approximately 60 mines .

The ships were to have been protected with Krupp and Wotan , Hart (" Wotan " , Hard) armor plating . The class decks were 20 mm thick , with 35 mm thick sloped deck . The conning tower had a roof that was 50 mm thick and sides 100 mm thick . The inner layer of the armor belt was 50 mm thick in critical areas amidships , and tapered down to zero protection at the stern and bow . The outer layer was 30 mm amidships ; it too tapered down to nothing at both ends of the ships . The gun turrets had the same armor protection as the preceding light cruiser Nürnberg : the sides were 35 mm thick , the faces were 80 mm thick , the roofs ranged in thickness from 20 ? 35 mm . The armor protecting the turret barbettes was 60 mm thick .