

= HNoMS Mjølner (1868) =

HNoMS Mjølner was the fourth of five ships of the John Ericsson @-@ class monitors built for the Royal Swedish Navy and the Royal Norwegian Navy in the mid @-@ 1860s . Impressed by the use of ironclads during the American Civil War , the design was based on that of the USS Monitor . They were designed under the supervision of the Swedish @-@ born inventor , John Ericsson ? coincidentally , designer of the Monitor ? , and built in Sweden . Mjølner was delivered in 1868 and ran aground the following year , although she was not seriously damaged . The ship was reconstructed in 1897 and given modern breech @-@ loading guns . Mjølner was sold for scrap in 1909 .

= = Design and description = =

The John Ericsson @-@ class ironclads were designed to meet the need of the Swedish and Norwegian Navies for small , shallow @-@ draft armored ships capable of defending their coastal waters . The standoff between the USS Monitor and the much larger CSS Virginia during the Battle of Hampton Roads in , early 1862 , roused much interest in Sweden in this new type of warship , as it seemed ideal for coastal defense duties . John Ericsson , designer and builder of the Monitor , born in Sweden ? although becoming an American citizen in 1848 ? offered to share his design with the Swedes . In response , they sent Lieutenant John Christian d 'Ailly to the United States to study monitor design and construction under Ericsson . D 'Ailly arrived in July 1862 and toured rolling mills , gun foundries , and visited several different ironclads under construction . He returned to Sweden in 1863 having completed the drawings of a Monitor @-@ type ship under Ericsson 's supervision .

The ship measured 60 @. @ 88 meters (199 ft 9 in) long overall , with a beam of 13 @. @ 54 meters (44 ft 5 in) . She had a draft of 3 @. @ 4 meters (11 ft 2 in) and displaced 1 @, @ 522 metric tons (1 @, @ 498 long tons) . Mjølner was divided into nine main compartments by eight watertight bulkheads . Over time a flying bridge and , later , a full superstructure , was added to each ship between the gun turret and the funnel . Initially her crew numbered 80 officers and men , but this increased to 104 as she was modified with additional weapons .

= = = Propulsion = = =

The John Ericsson @-@ class ships had one twin @-@ cylinder vibrating lever steam engines , designed by Ericsson himself , driving a single four @-@ bladed , 3 @. @ 74 @-@ meter (12 ft 3 in) propeller . Their engines were powered by four fire @-@ tube boilers at a working pressure of 40 psi (276 kPa ; 3 kgf / cm²) . The engines produced a total of 380 indicated horsepower (280 kW) which gave the monitors a maximum speed of 6 @. @ 5 knots (12 @. @ 0 km / h ; 7 @. @ 5 mph) in calm waters . The ships carried 110 tonnes (110 long tons) of coal , enough for six day 's steaming .

= = = Armament = = =

Mjølner was armed with a pair of Armstrong 270 @-@ millimeter (10 @. @ 6 in) rifled muzzle @-@ loading guns . Each gun was constructed of steel and weighed 18 @. @ 5 long tons (18 @. @ 8 t) . The ship also carried a 80 @-@ millimeter (3 @. @ 1 in) gun . During Mjølner 's reconstruction in 1897 her gun turret was fixed in place and modified to serve as a barbette for her two new breech @-@ loading Cockerill 120 @-@ millimeter (5 in) guns . She also received two 124 @-@ millimeter (4 @. @ 9 in) and 65 @-@ millimeter (2 @. @ 6 in) Cockerill guns mounted in her superstructure . In addition two 37 @-@ millimeter (1 @. @ 5 in) Hotchkiss 5 @-@ barrel revolving guns were mounted in the superstructure . They fired a shell weighing about 1 @. @ 1 lb (0 @. @ 50 kg) at a muzzle velocity of about 2 @, @ 000 ft / s (610 m / s) . This gave them a range of about 3 @, @ 500 yards (3 @, @ 200 m) . They had a rate of fire of about 30 rounds per minute

=== Armor ===

The John Ericsson @-@ class ships had a complete waterline armor belt of wrought iron that was 1 @. @ 8 meters (5 ft 11 in) high and 124 millimeters (4 @. @ 9 in) thick . The armor consisted of five plates backed by 91 millimeters (3 @. @ 6 in) of wood . The lower edge of this belt was 74 @. @ 2 millimeters (2 @. @ 9 in) thick as it was only three plates thick . The maximum thickness of the armored deck was 24 @. @ 7 millimeters (1 @. @ 0 in) in two layers . The gun turret 's armor consisted of twelve layers of iron , totalling 270 millimeters (10 @. @ 6 in) in thickness on the first four monitors . The inside of the turret was lined with mattresses to catch splinters . The base of the turret was protected with a 127 @-@ millimeter (5 @. @ 0 in) glacis , 520 millimeters (20 @. @ 5 in) high , and the turret 's roof was 127 millimeters thick . The conning tower was positioned on top of the turret and its sides were ten layers (250 millimeters (9 @. @ 8 in)) thick . The funnel was protected by six layers of armor with a total thickness of 120 millimeters (4 @. @ 7 in) up to half its height .

== Service ==

The Norwegians had built one monitor @-@ type ship of their own , Skorpionen , in 1865 , and laid down several others , but the Norwegian Parliament authorized construction of Mjølner in 1867 in Sweden at the cost of 1 @, @ 102 @, @ 000 Norwegian krone . She was launched in 1868 and completed on 7 September of that year . The ship ran aground at Kragerø on 21 June 1869 . Mjølner could not be pulled off the rocks until the ship 's ammunition , iron ballast and 120 long tons (120 t) of coal were removed . Her repairs were completed on 7 July 1869 by the Royal Dockyard at Horten , at the cost of 5 @, @ 000 krone . The court of inquiry found the ship 's commander and the pilot liable for the repairs , but the parliament released the two from their obligation two years later . She was visited by King Charles XV of Sweden on one occasion when visiting one of Sweden 's west @-@ coast ports in the early 1870s . Mjølner was laid up after her refit in 1897 , but was mobilized during 1905 when the personal union between Sweden and Norway was dissolved . She returned to reserve afterward before being sold for scrap in 1909 .