

THE MAIN GUNS OF THE IOWA-CLASS SHIPS

THE IOWA-CLASS BATTLESHIPS' PRIMARY

weapons were their nine Mark 7 sixteen-inch, fifty-caliber naval guns, which were deployed in three turrets of three weapons each. Two of the turrets were located forward, and one was located aft. Each of the guns could be raised or lowered independently, and each turret, which weighed more than 2,200 tons and required a crew of seventy-nine sailors to operate it during combat, could turn through a total of 300 degrees, covering five-sixths of all possible directions.

Each Mark 7 Gun, including its breech, weighed 134 tons and was designed specifically for use in the turrets of the Iowa-class ships. The gun's sixteen-inch designation indicates that the bore of the weapon is sixteen inches wide and that the gun fires shells that measure sixteen inches in diameter. Its designation as a fifty-caliber gun indicates that its barrel is fifty times as long as the width of the bore—or sixty-six feet, eight inches. Each Mark 7 Gun required six 110-pound bags of propellant to fire a sixteen-inch shell (either high explosive or armor piercing) up to twenty-four miles and could fire up to two shells per minute. These shells could fly for a minute and a half before striking their targets, meaning that two shells could still be in the air when a third was fired.

The Iowa-class battleships' sixteen-inch main guns fired two types of ammunition, which measured sixteen inches in diameter and about six feet in length. One version was the Mark 8 armor-piercing shell, which weighed 2,700 pounds and packed thirty-five pounds of explosives behind a heavy steel penetrating nose that could punch through thirteen inches of steel plate or up to thirty feet of concrete. The explosives in the armor-piercing shell were triggered by a 0.033-second fuse, which ensured that they would explode after the shell had penetrated the target's armor. The second type of shell was the Mark 13 high-capacity shell, which weighed 1,900 pounds and carried 135 pounds of explosives but lacked armor-penetrating capabilities. Armor-piercing shells were generally used to attack enemy ships or armored targets on land, while high-capacity shells were used for most land bombardments.