

Small Arms Ammunition Brass Cartridge Case



DEFINITION

Brass cartridge cases are key components in most types of modern ammunition. The **brass cartridge case** is a cylindrical container that houses the primer, propellant, and bullet — the three essential elements of any piece of ammunition.

DID YOU KNOW?

Upon the outbreak of war, a box of 1,000 rounds of rifle ammunition cost the Canadian government \$44.00 (just over \$900 in 2014 currency), or \$0.04 per round (\$0.82 in 2014 currency). Given the many millions of rounds expended in training and in battle, it is not difficult to see why the four-year conflict was so expensive.

HISTORICAL CONTEXT

Small arms are hand-held weapons such as rifles or pistols that use a contained explosion to shoot a bullet through a tube (known as a barrel).

From the 17th to the 19th centuries, muskets were the most common military small arms. Unlike modern small arms, which are loaded at the breech (the back end of the barrel), muskets were loaded from the muzzle (the front end of the barrel). The bullet was loaded separately from the gunpowder, which acted as the propellant. A primer, such as flint, was then needed to create a spark to ignite the gunpowder and fire the bullet. Using this technology, only one bullet could be fired at a time before the weapon needed to be reloaded.

The separate loading of bullets and propellant was time consuming, clumsy, and often ineffective under wet weather conditions (because the gunpowder was soaked, or the priming

mechanism would not produce a spark). To overcome these problems, arm manufacturers developed one-piece metallic ammunition during the 19th century.

DID YOU KNOW?

Canadian soldiers went to war in 1914 equipped with the domestically-manufactured Ross rifle. While the Ross was an accurate weapon, it suffered from various production and design defects, and did not function well under dirty battlefield conditions. Consequently, as of 1916, most Canadian soldiers had been re-equipped with more reliable British weapons, although snipers continued to use Ross rifles for their greater accuracy.

EVOLUTION/DEVELOPMENT

In the one-piece ammunition design, a **brass cartridge case** contains the primer, propellant, and bullet. During manufacture, the bullet is pressed into the mouth of the **brass cartridge case**. The primer is fitted into the base of the **brass cartridge case**.

The primer, when struck by the weapon's hammer or firing pin, explodes and ignites the propellant inside the **brass cartridge case**. The force created by this explosion propels the bullet free of the **brass cartridge case** and through the barrel of the weapon at a velocity of up to 800 metres per second.

After the bullet is fired, the empty **brass cartridge case** is ejected from the weapon and discarded.

Modern breech-loading small arms, as used during the First World War period, were normally equipped with a magazine that was capable of holding several rounds of ammunition at once — normally five to ten. For example, the Short Magazine Lee Enfield rifle, in service with the British Empire forces at the time, could be loaded with ten rounds. One pull of the trigger fired one round of ammunition. Before a second round could be fired, the empty **brass cartridge case** from the first round was ejected by opening the rifle's bolt. When the soldier manually closed the bolt again, it pushed the second round into the breech, making it ready to fire. The process was repeated until the weapon's magazine was empty.

One-piece metallic cartridges were much more reliable than earlier types of ammunition. They were essentially waterproof, easy to handle, and easy to load. The use of metallic cartridges with magazine rifles significantly increased the rate at which ammunition could be loaded and fired on the battlefield, one of the factors in the high casualty rates of the First World War.

DID YOU KNOW?

Infantry soldiers typically carried 150 rounds of ammunition in their cartridge pouches.

VOCABULARY LIST

Magazine:

A compartment fitted to a small arm, such as a rifle or pistol, to hold multiple rounds of ammunition.

Primer:

A component in a piece of ammunition that causes the propellant to start burning, normally through a small explosion or spark.

Propellant:

A component in a piece of ammunition that burns or explodes, producing the gaseous pressure that forces the bullet to pass through the barrel of the weapon.