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Submachine gun

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A **submachine gun** (**SMG**) is an air-cooled, magazine-fed, automatic carbine designed to fire pistol cartridges. The term "submachine gun" was coined by John T. Thompson, the inventor of the Thompson submachine gun.^[1]

The submachine gun was developed during World War I (1914–1918). At its zenith in World War II (1939–1945), millions of SMGs were made. Today, submachine guns have been largely replaced by assault rifles, which have a greater effective range and are capable of penetrating ballistic helmets and body armor used by modern infantrymen.^[2] However, submachine guns are still widely used by police and military special forces, who value the SMG's reduced recoil and noise signature, especially when suppressed. Its reduced risk of overpenetration is also a particularly valuable trait to police forces.

There are some inconsistencies in the classification of submachine guns.^[3] British Commonwealth sources often refer to SMGs as "machine carbines".^{[4][3]} Other sources refer to SMGs as "machine pistols" because they fire pistol-caliber ammunition, for example, the MP-40 and MP5, where "MP" stands for *Maschinenpistole* ("machine pistol" in German).^[5] However, the term "machine pistol" is also used to describe a handgun-style^[6] firearm capable of fully automatic or burst fire, such as the Stechkin and the H&K VP70. Personal Defence Weapons (PDW) such as the FN P90 and H&K MP7 are also commonly referred to as submachine guns.^[3] In addition, some compact assault rifles such as the Colt XM177, HK53 and AKS-74U are also referred to as SMGs, because they are used in the submachine gun role.^[7]



General John T. Thompson
holding a Thompson M1921

History

1900s to 1920s

In the early 20th century, experimental machine pistols were made by converting pistols such as the Luger P-08 and Mausers C96 from semiautomatic to full-automatic operation and adding detachable stocks. Carbine-type automatic weapons firing pistol rounds were developed during the latter stages of World War I by Italy, Germany and the United States. Their improved firepower offered an advantage in trench warfare.^[8]

In 1915, the Italians introduced the Villar-Perosa aircraft machine gun. It fired pistol-caliber 9mm Glisenti ammunition, but was not a true submachine gun, as it was originally designed as a mounted weapon. This odd design was then modified into the Beretta OVP carbine-type submachine gun, which then evolved into the Beretta Model 1918 after the end of World War I. Both the Beretta OVP and the Model 1918 had a traditional wooden stock, a 25-round top-fed box magazine, and had a cyclic rate of fire of 900 rounds per minute.

The Germans initially used heavier versions of the P08 pistol equipped with a larger-capacity snail-drum magazine and a longer barrel. By 1918, Bergmann Waffenfabrik had developed the MP 18, the first practical submachine gun. This weapon fired the 9×19mm Parabellum round and used the same 32-round snail-drum magazine as the Luger P-08. The MP18 was used in significant numbers by German stormtroopers employing infiltration tactics, achieving some notable



Artillery Luger P08 pistol with snail-drum magazine and removable stock.

successes in the final year of the war. However, these were not enough to prevent Germany's collapse in November 1918. After WWI, the MP18 would evolve into the MP28/II SMG, which incorporated a simple 32-round box magazine, a semi & full auto selector, and other minor improvements.^[9]

The Thompson submachine gun had been in development at approximately the same time as the Bergmann and the Beretta. However, the war ended before prototypes could be shipped to Europe.^[10] Although, it had missed its chance to be the first purpose-designed submachine gun to enter service, it became the basis for later weapons and had the longest active service life of the three.

In the interwar period the "Tommy Gun" or "Chicago Typewriter" became notorious in the U.S. as a gangster's weapon; the image of pinstripe-suited James Cagney types wielding drum-magazine Thompsons caused some military planners to shun the weapon. However, the FBI and other U.S. police forces themselves showed no reluctance to use and prominently display these weapons. The submachine gun eventually was gradually accepted by many military organizations, especially as World War II loomed, with many countries developing their own designs.

1930s to 1940s

The Italians were among the first to develop submachine guns during World War I. However, they were slow to produce them during World War II. The Beretta Model 1938 was not available in large numbers until 1943. The 38 was made in a successive series of improved and simplified models all sharing the same basic layout. The Beretta has two triggers, the front for semi-auto and rear for full-auto. Most Models use standard wooden stocks, although, some models were fitted with an MP 40-style under-folding stock and are commonly mistaken for the German SMG. The 38 series was extremely robust and proved very popular with both Axis forces and Allied troops (who used captured Berettas).^[11] It is considered the most successful and effective Italian small arm of World War II. The 38 series is the longest serving of the worlds SMGs, and later models can still be seen in the hands of Italian military and police forces.

In 1939, the Germans introduced the 9 mm Parabellum MP38 during the invasion of Poland. However, the MP38 production was still just starting and only a few thousand were in service at the time. It proved to be far more practical and effective in close quarters combat than the standard-issue German Kar 98K bolt-action rifle. From it, the nearly identical, MP40 was developed and made in large numbers; about a million were made during World War II. The MP40 was lighter than the MP38. It also used more stamped parts making it faster and cheaper to produce.^[12] The MP38 and MP40 were the first SMGs to use plastic furniture and a practical folding stock.^[12] They would set the fashion for all future SMG designs.^[12]

During the Winter War the badly outnumbered Finnish used the Suomi KP/-31 in large numbers against the Russians with devastating effect.^[13] Finnish ski troops became known for appearing out of the woods on one side of a road, raking Soviet columns with SMG fire and disappearing back into the woods on the other side. During the Continuation War the Finnish Sissi patrols would often equip every soldier with KP/-31s. The Suomi fired 9 mm Parabellum ammo from a 71 round drum magazine (although often loaded with 74 rounds). "This SMG showed to the world the importance of the submachine gun to the modern warfare."^[13] Prompting the development, adoption and mass production of submachine guns by most of the World's armies. The Suomi was used in combat until the end of Lapland war, was widely exported^[13] and remained in service to the late 1970s.

In 1940, the Russians introduced the 7.62×25mm PPD-40 and later PPSh-41 in response to their experience during the Winter War against Finland. The PPSH's 71 round drum magazine is a copy of the Suomi magazine. The USSR would go on to make over 6 million of PPSH-41 by the end of World War II. The Soviet Union had fielded large numbers of



The Bergmann MP18 was the world's first practical submachine gun



Thompson M1921 SMG with 100 round drum magazine



Beretta Model 38



The iconic MP40 9mm Parabellum submachine gun with stock extended.



Suomi M31 submachine with 70 round drum magazine attached, 20 and 50 round box magazines.



PPSh-41 with 71 round drum magazine

submachine guns, with whole infantry battalions being armed with little else. Even in the hands of conscripted soldiers with minimal training, the volume of fire produced by massed submachine guns could be overwhelming.

In 1941, Britain adopted the 9 mm Parabellum Lanchester submachine gun. Following the Dunkirk evacuation and with no time for the usual research and development for a new weapon, it was decided to make a direct copy of the German MP 28. However, The Lanchester prove to be difficult and expensive to manufacture. Shortly thereafter, the much simpler, cheaper and faster to make STEN submachine gun was developed. Over 4 million STEN Guns were made during the World War II. The STEN gun was so cheap and easy to make that Germany started manufacturing their own copy (the MP 3008) towards the end of World War II. After the war, the British replaced the STEN with the Sterling submachine gun. Britain also used many M1928 Thompson submachine guns during World War II.

The United States and its allies used the Thompson submachine gun, especially the simplified M1. However, the Thompson was still expensive and slow to produce. Therefore, U.S. developed the M3 submachine gun or "Grease Gun" in 1942, followed by the improved M3A1 in 1944. The M3 was not more effective than the Tommy Gun. However, it was made primarily of stamped parts and welded together. So, it could be produced much faster and at fraction of the cost of a Thompson. It could be configured to fire either .45 ACP or 9mm Luger ammunition. The M3A1 was among the longest serving submachine guns designs, being produced into the 1960s and serving in US forces into the 1980s.

After World War II, "...new submachine gun designs appeared almost every week to replace the admittedly rough and ready designs which had appeared during the war. Some (the better ones) survived, most rarely got past the glossy brochure stage."^[14] Most of these survivors were cheaper, easier and faster to make than their predecessors. As such, they were widely distributed.

In 1945, Sweden introduced the 9mm Parabellum Carl Gustav M/45 with a design borrowing from and improving on many design elements of earlier submachine-gun designs. It has a tubular stamped steel receiver with a side folding stock. The M/45 was widely exported, and especially popular with CIA operatives and U.S. Special Forces during the Vietnam War. In U.S. service it was known as the "Swedish-K".

In 1946, Denmark introduced the Madsen M-46, and in 1950, an improved model the Madsen M-50. These 9mm Parabellum stamped steel SMGs featured a unique clamshell type design, a side folding stock and a grip-safety on the magazine housing. The Madsen was widely exported and especially popular in Latin America with variants made by several countries.

In 1948, Czechoslovakia introduced the Sa vz. 23 series. This 9mm Parabellum SMG introduced several innovations: a progressive trigger for selecting between semi-automatic and full auto fire, a telescoping bolt that extends forward wrapping around the barrel and a vertical handgrip housing the magazine and trigger mechanism. The vz. 23 series was widely exported and especially popular in Africa and the Middle East with variants made by several countries. The vz. 23 inspired the development of the Uzi submachine gun.^[15]

In 1949, France introduced the MAT-49 to replace the hodgepodge of French, American, British, German and Italian SMGs in French service after WWII. The 9mm Parabellum MAT-49 is an inexpensive stamped steel SMG with a telescoping wire stock, a pronounced folding magazine housing and a grip safety. This "wildebeest like design" proved to be an extremely reliable and effective SMG, and was used by the French well into the 1980s. It was also widely exported to Africa, Asia and the Middle East.

1950s to 1990s

In 1954, Israel introduced a 9mm Parabellum open-bolt, blowback-operated submachine gun called the Uzi (after its designer Uziel Gal). The Uzi was one of the first weapons to use a telescoping bolt design with the magazine housed in the pistol grip for a shorter weapon. The Uzi has become one of the most popular submachine guns in the world, with



STEN MK II



M3 "Grease Gun" top & M1A1 "Tommy Gun" bottom



Czechoslovak Sa vz. 25



MAT-49 on display

over 10 million units sold,^[16] more than any other submachine gun.^[17]

In 1959, Beretta introduced the Model 12. This 9mm Parabellum submachine gun was a complete break with previous Beretta designs.^[18] It is a small, compact, very well made SMG and among the first to use telescoping bolt design.^[18] The M12 was designed for mass production and was made largely of stamped steel and welded together.^[18] It is identified by its tubular shape receiver, double pistol grips, a side folding stock and the magazine housed in front of the trigger guard. The M12 uses the same magazines as the Model 38 series.

In the 1960s, Heckler & Koch developed the 9mm Parabellum MP5 submachine gun. The MP5 is based on the G3 rifle and uses the same closed-bolt roller-delayed blowback operation system. This makes the MP5 more accurate than open-bolt SMGs such as the UZI. The MP5 is also one of the most widely used submachine guns in the world,^[19] having been adopted by 40 nations and numerous military, law enforcement, intelligence, and security organizations.^[20]

In the 1970s, extremely compact submachine guns were developed to be used with silencers or suppressors, such as the .45ACP Mac-10 and .380 ACP Mac-11.^[21] While these SMGs received enormous publicity and were prominently seen in films and television, they were not widely adopted by military or police forces.^[21] These smaller weapons led other manufacturers to develop their own compact SMGs such as the Micro-UZI and the H&K MP5K.

In the 1980s, Colt developed the Colt SMG and in the 1990s Izhmash developed the Vityaz-SN. Both are 9mm Parabellum, closed-bolt blowback-operated SMGs based on the M16 and AK-47 rifles respectively, and are widely used by their country's police and security forces.



The UZI



Beretta M12S



The Heckler & Koch MP5

Today

Today, submachine guns are facing stiff competition from compact assault rifles. Factors such as the increasing use of body armor and logistical concerns have combined to limit the appeal of submachine guns. As a result, compact assault rifles have been replacing submachine guns in many roles.

However, SMGs are still used by police and military special forces units for close quarters combat. They are also used as defense weapons for vehicle and air crews. SMGs still have a strong hold on niche users, due to their reduced size, recoil and muzzle blast. Submachine guns also lend themselves to the use of suppressors, particularly when loaded with subsonic ammunition. Variants of the Sterling and Heckler & Koch MP5 have been manufactured with integral suppressors.

Personal defense weapons

Developed during the late 1980s, the personal defense weapon (PDW) is touted as a further evolution of the submachine gun. The PDW was created in response to a NATO requests as a replacement for 9×19mm Parabellum submachine guns. The PDW is compact automatic weapon that can defeat enemy body armor and which can be used conveniently by non-combatant and support troops, and as a close quarters battle weapon for special forces and counter-terrorist groups.^{[22][23]}

Introduced in 1991, the FN P90, features a bullpup design with a futuristic appearance. It has a 50 round magazine housed horizontally above the barrel, an integrated reflex sight and fully ambidextrous controls.^[24] A simple blowback automatic weapon, it was designed to fire the FN 5.7×28mm cartridge which can penetrate soft body armor.^{[22][23]} The P90 was designed to have a length no greater than a man's shoulder width, to allow it to be easily carried and maneuvered in tight spaces, such as the inside of an armored vehicle.^[24]



FN P90

Introduced in 2001, the Heckler & Koch MP7 is a direct rival to the FN P90. It is a more conventional looking design. The MP7 uses a short stroke piston gas system as used on H&K's G36 and HK416 assault rifles, in place of a blowback system traditionally seen on submachine guns.^[25] The MP7 uses 20, 30 and 40 round magazines and fires 4.6x30mm ammunition which can penetrate soft body armor. Due to the heavy use of polymers in its construction, the MP7 is much lighter than older SMG designs, only 1.2 kg (2.65 lb) with 20 round empty magazine^[26]



An MP7A1 with a 20 round magazine, and a reflex sight

See also

- Firearm action
- List of submachine guns
- Personal defense weapon
- Semi-automatic pistol
- Sputter Gun
- Submachine gun competition
- Overview of gun laws by nation

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