

Anti-Materiel Rifles

Anti-materiel rifles are designed primarily to engage and neutralize a variety of targets at distances well beyond a kilometre (or half a mile). While specialized ammunition enables the weapon to pierce light armour and many aircraft, anti-materiel rifles are also used for anti-personnel purposes. Most of the weapons in this class are chambered for 12.7 mm (.50 calibre) ammunition, but some fire cartridges of up to 20 mm. The effective range for 12.7 mm and 14.5 mm anti-materiel rifles is 1,000-2,000 m (at the upper threshold, at least three times the effective range of a purpose-built 7.62 mm sniper rifle), but use of a mount can extend the range and its ability to engage the target.¹ A 20 mm anti-materiel rifle typically has an effective range of around 2,000 m (Jane's, 2007, pp. 287-296).

Anti-materiel rifles owe their origins to the First World War. Developed as a quick response to the Allied introduction of the tank in 1917, the early 'T' Gewehr anti-tank rifle fired a 13 mm cartridge that was designed to defeat the relatively thin armour of the early tank. Man-portable for use in the trenches, the design was based on the bolt-action design of the much smaller Mauser rifle. The development of what had become known as the 'anti-tank rifle' continued between the two World Wars, some countries choosing to stay with a larger calibre, others opting for smaller, rifle calibres, but with a much increased muzzle velocity. However, irrespective of the chosen calibre, the man-portable, single-shot or magazine fed anti-tank rifle posed little threat to better-protected armoured vehicles at the start of the Second World War. Obsolescent by this time, the anti-tank rifle remained in limited service, sometimes being used in a counter-sniper role

where its greater barrier defeating abilities over the standard infantry rifle made it an ideal choice. The cessation of hostilities in 1945 largely saw the disappearance of the 'anti-tank' rifle.²

The introduction in 1982 of the Barrett M82 12.7 mm self-loading rifle made this type of weapon attractive to many countries' militaries and law enforcement bodies. Although no longer designed to engage tanks, advances in ballistics, improvements in the weapons' design to reduce recoil and weight, and more effective bullets resulted in a much more portable weapon capable of directly engaging a variety of targets with significantly less collateral damage than larger and more destructive weapon systems. Today, more than a dozen countries produce anti-materiel rifles, and dozens more have procured them.

The 12.7 mm rifle is also popular with civilians in several countries and numerous non-military versions are being produced to meet this demand. The civilian versions are generally heavier, less robust, and are equipped with less capable optical devices and fewer enablers (although more sophisticated scopes and electronic devices can be obtained commercially and fitted to most 'civilian' models) than the weapons designed to military specifications. In the United States alone, more than 20 companies manufacture 12.7 mm calibre rifles (Boatman, 2004, pp. 51-52, 56, 58, 61; see Table 1 for a sampling of producers and prices). Interest in this type of firearm arises in part because it is legal for civilians in the United States to possess this weapon and because using these rifles has become a recognized sport in the United States as well as other countries, including Switzerland and the United Kingdom.³



Barrett M82

Table 1 Examples of 12.7 mm (.50 calibre) anti-materiel rifle prices from US companies (USD)*

Company	Prices	Company	Prices	Company	Prices
A.L.S	1,900	Christensen Arms	5,500	Robar	7,000
Armalite Inc.	3,000	East Ridge Gun Company Inc.	1,900-3,600	Safety Harbor Firearms Inc.	1,850-2,450
Barrett	3,000-8,050	E.D.M. Arms	2,250-8,500	Serbu Firearms	2,200-2,450
Bluegrass Armory	3,100	Ferret 50	3,300-4,000	Watson Weapons	2,150

* Prices are rounded to nearest USD 50.

Source: Leff, 2007

Non-state armed groups have also shown an interest in acquiring this weapon. They have succeeded in obtaining them on several occasions from civilian customers who have transferred them (illegally). Examples include the Irish Republican Army (Vobejda and Ottaway, 1999), the Kosovo Liberation Army (Sullivan, 2004), and drug cartels in Mexico (see, for example, US DoJ, 2010; 2011).⁴ ■

Sourcing

This *Research Note* is based on Eric G. Berman and Jonah Leff, 'Light Weapons: Products, Producers, and Proliferation,' *Small Arms Survey 2008: Risk and Resilience*, Cambridge: Cambridge University Press, pp. 7-41. It has been updated by Eric G. Berman.

Notes

- 1 A Canadian soldier firing a .50 caliber rifle (a McMillan Tac-50) reportedly successfully engaged an enemy combatant at 2,430 meters in Afghanistan in 2002, besting a record for sniping in combat that had stood for more than a quarter of a century (Friscolanti, 2006).
- 2 Author correspondence with Richard Jones, Consulting Editor, *Jane's Infantry Weapons Yearbook*, 18 November 2010.
- 3 The US Fifty Caliber Shooters Association (FCSA), for example, reports it has more than 4,000 members from 22 countries (FCSA, 2011).
- 4 According to a US Attorney in Oklahoma, 'the illegal trafficking of firearms from the United States to Mexico is a serious problem' and 'is fueling a lot of the violent drug cartel activity.' The illegal transfers have included .50 calibre semi-automatic rifles (US DoJ, 2010; 2011).

References

- Boatman, Robert H. 2004. *Living with the BIG .50*. Boulder (CO): Paladin Press.
- FCSA (Fifty Caliber Shooters Association). 2011. 'Fifty Caliber Shooters Association, Inc. Fact Sheet.' Accessed May 2011. <<http://www.fcsa.org/wwwroot/visitors/about.php/>>
- Friscolanti, Michael. 2006. 'We Were Abandoned.' *Macleans.ca*. Web edition, 15 May. <http://www.macleans.ca/canada/national/article.jsp?content=20060515_126689_126689>
- Jane's. 2007. *Jane's Ammunition Handbook 2007-2008*. Coulsdon: Jane's Information Group.
- Leff, Jonah. 2007. *For Sale: .50 Caliber Rifles in the US*. Unpublished background paper. Geneva: Small Arms Survey.
- Sullivan, Stacy. 2004. *Be not afraid, for you have sons in America*. New York: St. Martin's Press.
- US DoJ (United States Department of Justice). 2010. 'Two Men Charged with Conspiracy to Illegally Purchase and Smuggle Military Type Semi-Automatic Rifles to Mexico'. Press Release. 22 September. <<http://www.atf.gov/press/releases/2010/09/092210-dal-two-charged-on-firearms-smuggling-conspiracy.html>>
- . 2011. 'Stillwater Man Sentenced To One Year In Federal Prison For His Role As A Straw Buyer Of Firearms In Scheme To Illegally Purchase And Transfer Military Type Semi-automatic Rifles To Texas And Mexico'. Press Release. 19 April. <http://www.justice.gov/usao/okw/news/2011/2011_04_19_4.html>
- Vobejda, Barbara and David Ottaway. 1999. 'The .50-Calibre Rifle.' *Washington Post*. 17 August.

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