

# 7.62×54mmR

## 7.62×54mmR



Examples of 7.62 × 54mm ammunition. The photo shows, reading from left to right: Sellier & Bellot hollow point boat tail; "Czech silver tip", mild steel core, light ball; Hungarian silver/yellow-tip, mild steel core, heavy ball; Wolf Ammunition Gold soft-point; USSR 1986 steel core light ball, Factory 60. [1]; Yugoslav surplus (1953); USSR 1940s lead core light ball [2]

<b>Type</b>	Rifle
<b>Place of origin</b>	<span><span><span></span></span><span> </span></span> Russian Empire
Service history	
<b>In service</b>	1891–present
<b>Used by</b>	<ul style="list-style-type: none"> <li>Russian Empire</li> <li>Soviet Union</li> <li>Russian Federation</li> <li>Finland<sup>[1]</sup><a href="#">Wikipedia:Link rot</a></li> <li>Warsaw Pact</li> <li>China</li> <li>Vietnam</li> <li>North Korea</li> <li>Cambodia</li> <li>Laos</li> <li>Cuba</li> <li>Albania</li> <li>United States</li> </ul>

<b>Wars</b>	Boxer Rebellion Russo-Japanese War World War I Russian Civil War Winter War World War II Korean War Vietnam War Laotian Civil War Cambodian Civil War Cambodian-Vietnamese War Soviet war in Afghanistan Yugoslav wars Gulf War War in Afghanistan Iraq War Cambodian–Thai border dispute Russia–Georgia war Libyan civil war Syrian civil war		
<b>Production history</b>			
<b>Designed</b>	1891		
<b>Produced</b>	1891–present		
<b>Specifications</b>			
<b>Case type</b>	Rimmed, Bottleneck		
<b>Bullet diameter</b>	7.92 mm (0.312 in)		
<b>Neck diameter</b>	8.53 mm (0.336 in)		
<b>Shoulder diameter</b>	11.61 mm (0.457 in)		
<b>Base diameter</b>	12.37 mm (0.487 in)		
<b>Rim diameter</b>	14.40 mm (0.567 in)		
<b>Rim thickness</b>	1.6 mm (0.063 in)		
<b>Case length</b>	53.72 mm (2.115 in)		
<b>Overall length</b>	77.16 mm (3.038 in)		
<b>Case capacity</b>	4.16 cm <sup>3</sup> (64.2 gr H <sub>2</sub> O)		
<b>Rifling twist</b>	240 mm (1 in 9.45 in)		
<b>Primer type</b>	Berdan or Boxer Large Rifle		
<b>Maximum pressure</b>	360 MPa (52,000 psi)		
<b>Ballistic performance</b>			
<b>Bullet weight/type</b>	<b>Velocity</b>	<b>Energy</b>	
11.3 g (174 gr) HPBT	797 m/s (2,610 ft/s)	3,593 J (2,650 ft·lbf)	
11.7 g (181 gr) FMJ	786 m/s (2,580 ft/s)	3,614 J (2,666 ft·lbf)	
11.7 g (181 gr) SP	800 m/s (2,600 ft/s)	3,744 J (2,761 ft·lbf)	
9.7 g (150 gr) FMJ	865 m/s (2,840 ft/s)	3,629 J (2,677 ft·lbf)	
11.7 g (181 gr) SP	805 m/s (2,640 ft/s)	3,779 J (2,787 ft·lbf)	
<i>Test barrel length: 73cm, 28inch</i>			
<i>Source(s): <sup>[2][3]</sup></i>			

The **7.62×54mmR** is a rimmed rifle cartridge developed by the Russian Empire and was introduced as a service cartridge in 1891. Originally designed for the bolt-action Mosin–Nagant rifle, it was used during the late Tsarist era and throughout the Soviet period to the present day. The cartridge remains one of the few standard issue rimmed cartridges still in military use and has the longest service life of all military issued cartridges in the world.<sup>[1]</sup>

The American Winchester Model 1895 was also chambered for this cartridge per a contract with the Russian government. The 7.62×54mmR is still in use by the Russian military in the Dragunov and other sniper rifles, as well as some modern machine guns like the PKM. Originally, the round was designated as "Трехлинейный патрон образца 1891 года" - (Three-line cartridge model of 1891). It then became widely known under the designation "7,62мм винтовочный патрон" (7,62mm rifle cartridge). The round has erroneously come to be known as the "7.62mm Russian" (and is still often referred to as such colloquially), but, according to new standards, the "R" in the modern official C.I.P. designation (7.62 × 54 R) stands for Rimmed, in line with standard C.I.P. designations. The name is sometimes confused with the "7.62 Soviet" round, which refers to the 7.62×39mm cartridge used in the SKS and AK-based (AK-47) rifles.



From left to right: 7.62×54mmR, 7.62×39mm and 7.62×25mm.

## Background

The 7.62×54mmR is the oldest cartridge still in regular combat service with several major armed forces in the world. In 2011 the cartridge reached 120 years in the service mark. The 7.62×54mmR is currently (September 2012) mainly used in sniper rifles like the Dragunov sniper rifle and machine guns like the PKM. The ballistic performance is slightly better than the .308 Winchester/7.62×51mm NATO cartridge. The .30-06 Springfield cartridge (7.62×63 mm) with its higher service pressure and case capacity *can* outperform the 7.62×54mmR, especially when same length test barrels are used in this comparison.<sup>[4]</sup> The 7.62×54mmR's case capacity prevents it from reaching the most powerful .30-06 loads, but even with this limit, it has been used to successfully kill large bears. Because of performance similar to the iconic American .30-06 cartridge, a similarly rich military and historic heritage and amazing longevity, the 7.62×54mmR is nicknamed "the Russian .30-06" by some. It is also one of the few (along with the .22 Hornet, .30-30 Winchester and .303 British) bottlenecked, rimmed centerfire rifle cartridges still in common use today. Most of the bottleneck rimmed cartridges of the late 1880s and 1890s fell into disuse by the end of the First World War.

The 7.62×54mmR originally had a 13.7 g (210 grain) "Jager" round-nosed full metal jacket (FMJ) bullet. Due to experiences in the Russo-Japanese War, the projectile was replaced in 1908 by the "L" 9.5 grams (147 gr) spitzer bullet, which basic design has remained standard to the present.

## Sniper Rounds

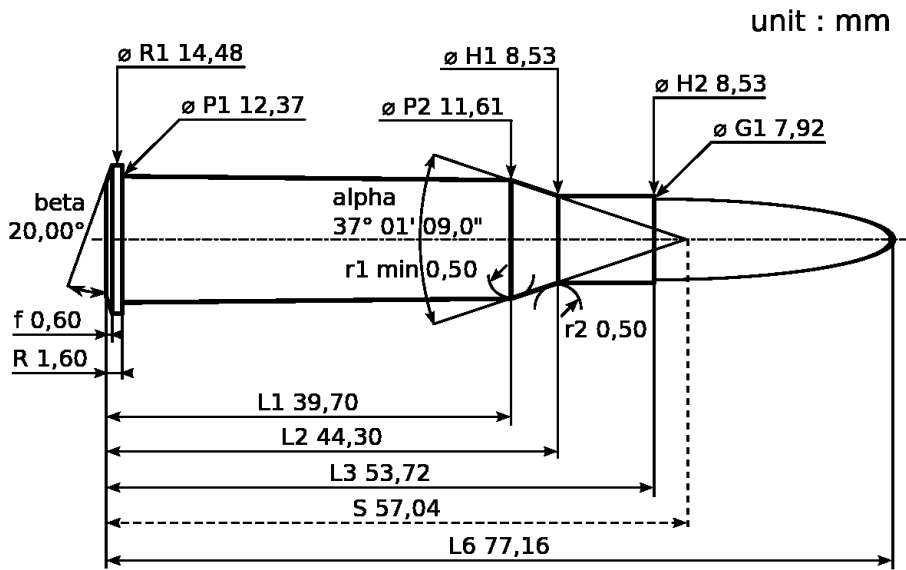
To increase accuracy for the Dragunov SVD, the Soviets developed the 7N1 variant of the cartridge in 1966. The 7N1 was developed by V. M. Sabelnikov, P. P. Sazonov and V. M. Dvorianinov. It used match-grade extruded powder instead of the coarser ball propellant and had a 9.8 g (151.2 gr) boat-tailed FMJ jacketed projectile with an air pocket, a steel core and a lead knocker in the base for maximum terminal effect. Produced by "Factory 188" (Novosibirsk Low Voltage Equipment Plant), cartridges are only head-stamped with the number "188" and the year of manufacture. It came packaged 20 loose rounds to a paper packet, 22 packets to a metal "spam" tin, and two tins per wooden case for a total of 880 rounds. The individual paper packets, hermetically sealed metal 'spam' cans, and

wooden shipping crates were all distinctly marked *Snaiperskie* ("Sniper") in Cyrillic. Even the wax wrapping paper for the paper boxes was covered in red text to make sure it wasn't misused.

As hard body armor saw increasing use in militaries the 7N1 was replaced in 1999 by the 7N14 special load developed for the SVD. The 7N14 round is loaded with a 9.8 g (151.2 gr) projectile containing a sharp hardened steel penetrator to improve penetration which is fired with an average muzzle velocity of 830 m/s (2,723 ft/s).

### Cartridge dimensions

The 7.62x54mmR has 4.16 ml (64 grains H<sub>2</sub>O) cartridge case capacity. The pronounced tapering exterior shape of the case was designed to promote reliable case feeding and extraction in bolt action rifles and machine guns alike, under challenging conditions. Although the design did not help improve reliability, the cartridge's shape remains the same to the present day.



**7.62x54mmR maximum C.I.P. cartridge dimensions.** All sizes in millimeters (mm).

Americans would define the shoulder angle at  $\alpha/2 \approx 18.5$  degrees. The common rifling twist rate for this cartridge is 240 mm (1 in 9.45 in), 4 grooves,  $\varnothing$  lands = 7.62 mm (0.300 in),  $\varnothing$  grooves = 7.92 mm (0.312 in), land width = 3.81 mm and the primer type is Berdan or very rarely Boxer (in large rifle size).



According to the official C.I.P. (Commission Internationale Permanente pour l'Epreuve des Armes à Feu Portatives) guidelines the 7.62x54mmR case can handle up to 390 MPa (56,564 psi) piezo pressure. In C.I.P. regulated countries every rifle cartridge combo has to be proofed at 125% of this maximum C.I.P. pressure to certify for sale to consumers.

## Performance

The attainable muzzle velocities and muzzle energies of the 7.62×54mmR are comparable with the .308 Winchester. The spitzer bullets used in the military variants have a particularly elongated shape which results in a favorable ballistic coefficient and sectional density, contributing to an adequate long range performance and energy retention. <http://7.62x54r.net/MosinID/MosinAmmo023.htm>

When used with modern hunting bullets, the 7.62×54mmR is capable of taking game in the medium to large sized class(CXP2 and CXP3). In Russia the 7.62×54mmR is commonly used for hunting purposes mostly in sporterized Mosin-Nagant rifles and civil Dragunov variants (Tigers). The chambering is also used for protection against dangerous game like brown and polar bears.

## Basic specifications of 21st century Russian service loads

The 7.62×54mmR rounds in use with the Armed Forces of the Russian Federation are designed for machine guns and sniper rifles. As per 2003 there were several variants of 7.62×54mmR rounds produced for various purposes. All use clad metal as case material.

### 57-N-323S

a conventional steel-core bullet is designed to engage personnel and weapon systems. The bullet has a steel core. The tip has no distinguishing colour. It can penetrate a 6 mm (0.2 in) thick St3 steel plate at 520 m (569 yd) and 6Zh85T body armour at 110 m (120 yd).

### 7N13

an enhanced penetration bullet is designed to kill personnel wearing body armour. The bullet features a heat strengthened core. The tip is uncoloured. A sealing lacquer belt on the mouth of the case is red-coloured. It can penetrate a 6 mm (0.2 in) thick St3 steel plate at 660 m (722 yd) and 6Zh85T body armour at 800 m (875 yd).

### 7T2

with the T-46 tracer bullet is designed for fire adjustment and target designation. The bullet has a green tip and the tracer burns for 3 seconds.

### 7BZ-3

with the B-32 armourpiercing/incendiary bullet is designed to defeat light armoured targets. The bullet has a black-red tip.

### 7N1

a sniper round designed to kill single targets from a sniper rifle. The tip of the bullet is uncoloured.

Cartridge designation <sup>[5][6]</sup>	57-N-323S	7N13 (AP)	7T2 (tracer)	7BZ3 (API)	7N1 (sniping load)
Cartridge weight	21.8 g (336 gr)	21.7 g (335 gr)	22 g (340 gr)	22.6 g (349 gr)	21.9 g (338 gr)
Bullet weight	9.6 g (148.2 gr)	9.4 g (145.1 gr)	9.65 g (148.9 gr)	10.39 g (160.3 gr)	9.8 g (151.2 gr)
Muzzle velocity	828 m/s (2,717 ft/s)	828 m/s (2,717 ft/s)	798 m/s (2,618 ft/s)	809 m/s (2,654 ft/s)	823 m/s (2,700 ft/s)
Muzzle energy	3,291 J (2,427 ft-lbf)	3,222 J (2,376 ft-lbf)	3,073 J (2,267 ft-lbf)	3,400 J (2,508 ft-lbf)	3,319 J (2,448 ft-lbf)
Accuracy of fire at 300 m (328 yd)	90 mm (3.5 in) (R <sub>50</sub> )	90 mm (3.5 in) (R <sub>50</sub> )	150 mm (5.9 in) (R <sub>50</sub> )	150 mm (5.9 in) (R <sub>50</sub> )	80 mm (3.1 in) (R <sub>100</sub> )

- R<sub>50</sub> at 300 m (328 yd) means the closest 50 percent of the shot group will all be within a circle of the mentioned diameter at 300 m (328 yd).
- R<sub>100</sub> at 300 m (328 yd) means every shot of the shot group will be within a circle of the mentioned diameter at 300 m (328 yd).

## Availability

7.62×54mmR is widely available both as military surplus and new production, but less so for match-grade rounds. Most surplus ammunition is steel-cased and uses Berdan primers, which effectively hinders its use for handloading. However, with the increased popularity of surplus Eastern-bloc Mosin-Nagant rifles in the United States, Boxer primed ammunition and unfired cases are increasingly available; these cases take large rifle primers.

## Cartridge derivatives

The 6.5×54mmR cartridge used in many Vostok brand target rifles in the 1960s and 1970s is a necked down version of the 7.62×54R.

## List of 7.62×54mmR Firearms

### Rifles

- The various Mosin-Nagant bolt-action rifles including the sawn-off "Obrez" pistol.
- The American Winchester Model 1895. Approximately 300,000 made for the Russian army in 1915-16.
- AVB-7.62
- AVS-36
- Dragunov sniper rifle (including Chinese NDM-86 variant)
- JS 7.62
- SVT-38 and SVT-40
- PSL sniper rifle
- M91
- Berkut-2M1
- IZH-18MH
- SV-98 (Snaiperskaya Vintovka Model 1998)
- Alejandro Sniper Rifle
- Dragunov SVU (1991 redesign of the Dragunov sniper rifle)

### Machine guns

- 2B-P-10
  - Degtyaryov machine gun (DP28) / (RP-46)
  - DS-39
  - GShG-7.62 machine gun
  - Hua Qing Minigun
  - Madsen machine gun
  - PK machine gun (also known as PKM).
  - PKP "Pecheneg" machine gun
  - PM M1910
  - PV-1 machine gun
  - RP-46 machine gun
  - Slostin machine gun
  - Savin-Narov machine gun
  - SG-43 Goryunov
  - ShKAS machine gun
  - Type 53/57 machine gun
  - Type 67 machine gun and Type 80 machine gun.
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- Type 73 light machine gun
- Uk vz. 59
- Zastava M84

## Alternative names

- 7.62 Russian
- 7.62 Mosin-Nagant
- 7.62 Dragunov
- 7.62×54R
- Rimmed Russian

## References

### Notes

- [1] [http://www.russian-mosin-nagant.com/finn\\_section.htm](http://www.russian-mosin-nagant.com/finn_section.htm)
- [2] Sellier & Bellot rifle ammunition (<http://www.sellier-bellot.cz/rifle-ammunition.php?product=12>)
- [3] Wolf Gold ammunition in a reloadable brass case ([http://www.wolfammo.com/index.php?option=com\\_content&task=view&id=75&Itemid=117](http://www.wolfammo.com/index.php?option=com_content&task=view&id=75&Itemid=117))
- [4] William C. Davis Jr. *Handloading*. 1986. p. 191. ISBN 0-935998-34-9.
- [5] Russian 7.62x54mm Rounds for Rifles and Machine Guns, Land Forces Weapons Export Catalog, page 87 ([http://www.military-today.com/russian\\_land\\_forces.pdf](http://www.military-today.com/russian_land_forces.pdf))
- [6] Novosibirsk Cartridge Plant Military Cartridges 7.62 mm ([http://www.lveplant.ru/pages\\_en.php?id=18](http://www.lveplant.ru/pages_en.php?id=18))

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- C.I.P. decisions, texts and tables ( free current C.I.P. CD-ROM version download (ZIP and RAR format) (<http://www.cip-bp.org/index.php?id=tdcc-telechargement>))
- Accurate (2000). *Accurate Smokeless Powders Loading Guide* (Number Two (Revised) ed.). Prescott, AZ: Wolfe Publishing. p. 286. Barcode 94794 00200.

## External links

- Various photos of 7.62×54mmR ammunition ([http://www.conjay.com/Ammunition for Armor Testing East 7.62&nbsp;mm x 54R.htm](http://www.conjay.com/Ammunition%20for%20Armor%20Testing%20East%207.62%20mm%20x%2054R.htm))
- An evaluation list for variants, weights, and velocities of this ammunition type (<http://7.62x54r.net/MosinID/MosinAmmo.htm>)
- A dimensional diagram of the cartridge (<http://7.62x54r.net/MosinID/MosinCartridges.htm>)
- 110 Years Of The 7.62×54R (<http://www.mosinnagant.net/i3tro4.asp>)
- C.I.P. dimensions and nomenclature for rimmed cartridges 7.62×54mmR is on page 25 ([http://www.intermin.fi/intermin/images/nsf/files/B0E765375DA00143C2256FBE0032DD2A/\\$file/TABIIcal.pdf](http://www.intermin.fi/intermin/images/nsf/files/B0E765375DA00143C2256FBE0032DD2A/$file/TABIIcal.pdf))
- C.I.P. TDCC sheet 7.62 × 54 R (legally binding dimensions and data for civilian use in Russia) (<http://www.cip-bobp.org/homologation/uploads/tdcc/tab-ii/7-62-x-54-r-en.pdf>)

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