

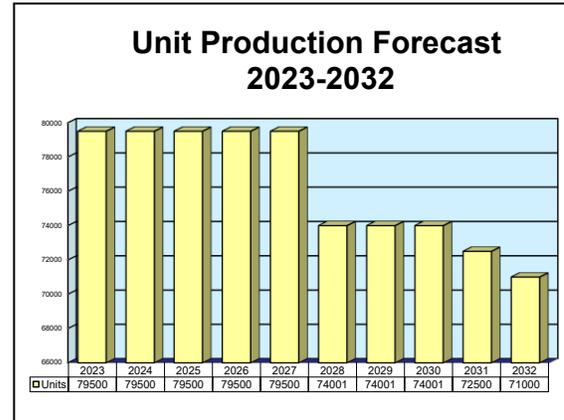
ARCHIVED REPORT

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RPG-18/RPG-22/RPG-26/RPG-27

Outlook

- Serial production of the RPG-26 and RPG-27 ongoing in the Russian Federation
- RPG-18 and RPG-22 production lines remain dormant
- Forecast reflects Russian production of RPG-26 and RPG-27 only



Orientation

Description. Man-portable anti-armor weapons.

Sponsor. The Ministry of Defense of the Russian Federation sponsors the development and Russian Army procurement of the RPG-26 and RPG-27.

Status. Development through serial production.

Total Produced. Through 2022, we estimate the Russian contractors produced the following:

- 1,509,300 RPG-18s and 547,743 RPG-22s
- 1,064,720 RPG-26s and 1,888,741 RPG-27s

In addition, we estimate the Arsenal Company in Bulgaria produced over 82,600 RPG-22s under license.

Application. Man-portable, shoulder-fired, light anti-armor weapons optimized for use by infantrymen.

Price Range. These weapons are available at the following unit prices, in 2023 U.S. dollars:

- RPG-18: \$721
- RPG-22: \$801 (Bulgarian model: \$783)
- RPG-26: \$1,065
- RPG-27: \$1,874

Contractors

Prime

Federal State Unitary Enterprise, Rosoboronexport, Rosoboronexport State Corp	http://www.roe.ru , 27/3 Stromynka St, Moscow, Russian Federation, Tel: + 7 495 534 6183, Fax: + 7 495 534 6153, Prime
Arsenal Joint Stock Co	http://www.arsenal-bg.com , 100, Rozova Dolina St, Kazanlak, Bulgaria, Tel: + 359 431 50 000, Fax: + 359 431 50 001, Email: arsenal2000@arsenal2000-bg.com , Licensee
State Enterprise "Signal" GU	Ulitsa Novorossiyskaya, 2, Chelyabinsk, Russian Federation, Tel: + 7 351 122 12 122, Fax: + 7 351 253 37 42, Email: buh@gpsignal.ru , Second Prime
State Research and Production Enterprise "Bazalt"	http://www.bazalt.ru , 32, Velyaminovskaya St, Moscow, Russian Federation, Tel: + 7 095 369 0122, Fax: + 7 095 369 2418, Email: moscow@bazalt.ru , Second Prime

RPG-18/RPG-22/RPG-26/RPG-27**Technical Data****RPG-18**

Design Features. The RPG-18 is essentially a Russian copy of the M72A2 LAW, a product of Nammo Defense Systems (Mesa, Arizona). For more information on the M72A2, see the "M72" report in this forecast service.

Dimensions. The following data reflect RPG-18 weapons captured in Afghanistan.

	<u>SI Units</u>	<u>U.S. Units</u>
Projectile length	69 cm	2.26 ft
Carry length	70 cm	2.29 ft
Firing length	1.05 m	3.44 ft
Projectile diameter	64.0 mm	2.52 in
Total diameter	6.6 cm	2.6 in
Projectile weight	1.44 kg	3.17 lb
Firing weight	2.72 kg	5.98 lb

Performance. The range and armor perforation data reflect RPG-18 weapons from Afghanistan.

	<u>SI Units</u>	<u>U.S. Units</u>
Speed	115 mps	377.3 fps
Altitude	Line of sight	Line of sight
Range	200 m	218.7 yd
Armor perforation	37.7 cm	14.84 in



72mm RPG-22 with HEAT Warhead

Source: Arsenal Company

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RPG-22

Design Features. The RPG-22 is an improved version of the RPG-18 providing enhanced armor perforation.

Dimensions. The following data reflect the latest production-standard RPG-22.

	<u>SI Units</u>	<u>U.S. Units</u>
Projectile length	74.0 cm	2.43 ft
Carry length	78.5 cm	2.58 ft
Firing length	85.0 cm	2.79 ft
Projectile diameter	72.5 mm	2.85 in
Total diameter	7.6 cm	2.99 in
Projectile weight	2.22 kg	4.88 lb
Firing weight	2.71 kg	5.96 lb

Performance. The range data reflect RPG-22 weapons from Afghanistan. The armor perforation data reflect published literature from Rosoboronexport and the Russian Ministry of Defense.

	<u>SI Units</u>	<u>U.S. Units</u>
Speed	300 mps	984.2 fps
Altitude	Line of sight	Line of sight
Range	250 m	273.4 yd
Armor perforation	40.0 cm	15.75 in



72mm RPG-26 with HEAT Warhead

Source: Rosoboronexport

RPG-26

Design Features. The RPG-26 is an improved version of the RPG-22 providing enhanced armor perforation.

Dimensions. The following data for the RPG-26 reflect published literature from Rosoboronexport and the Russian Ministry of Defense. Some data are still provisional.

	<u>SI Units</u>	<u>U.S. Units</u>
Projectile length	71.3 cm	2.34 ft
Carry length	76.3 cm	2.50 ft
Firing length	85.0 cm	2.79 ft
Projectile diameter	72.5 mm	2.85 in
Total diameter	7.85 cm	3.09 in
Projectile weight	2.1 kg	4.62 lb
Firing weight	2.9 kg	6.38 lb

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Performance. The range and armor perforation data reflect published literature from Rosoboronexport and the Russian Ministry of Defense. The RPG-26 warhead can reportedly defeat 1 meter of reinforced concrete.

	<u>SI Units</u>	<u>U.S. Units</u>
Speed	308 mps	1,010.5 fps
Altitude	Line of sight	Line of sight
Range	250 m	273.4 yd
Armor perforation	44.0 cm	17.32 in



105mm RPG-27 with Tandem HEAT Warhead

Source: Rosoboronexport

RPG-27

Design Features. The RPG-27 represents a greatly improved weapon offering substantially improved armor perforation. Broadly based on the RPG-26, this weapon fires an advanced tandem HEAT warhead that is effective against explosive reactive armor (ERA).

Dimensions. The following data for the RPG-27 reflect published literature from Rosoboronexport and the Russian Ministry of Defense. Some data are still provisional.

	<u>SI Units</u>	<u>U.S. Units</u>
Firing length	1.15 m	3.77 ft
Projectile diameter	105 mm	4.13 in
Total diameter	10.75 cm	4.23 in
Projectile weight	7.63 kg	16.79 lb
Firing weight	8.0 kg	17.6 lb

Performance. The following data for the RPG-27 reflect published literature from Rosoboronexport and the Russian Ministry of Defense. The tandem HEAT warhead is optimized for use against ERA.

	<u>SI Units</u>	<u>U.S. Units</u>
Speed	300 mps	984.2 fps
Altitude	Line of sight	Line of sight
Range	200 m	218.7 yd
Armor perforation	65.0 cm	25.59 in

Propulsion. The RPG-18, RPG-22, RPG-26, and RPG-27 all feature a solid-fuel rocket motor. Due to their back blast, these weapons are *not* suitable for firing from enclosed spaces closer than 2 meters (6.56 ft) to a wall behind the weapon, and closer than 20 centimeters (7.9 in) to the ground.

Nevertheless, Russian sources maintain that the RPG-22 can fire from "urban structures."

Launcher Mode. The shoulder-launched RPG-18, RPG-22, RPG-26, and RPG-27 projectiles each fire from a disposable telescoping tube.

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- The RPG-18 features an extruded light alloy launch tube.
- The RPG-22 and RPG-26 feature an aluminum inner tube and a glass-fiber outer tube.
- The RPG-27 launch tube is probably similar to the RPG-26, but exhibits more robust construction.

In all four weapons, the launch tube mounts the integral pop-up front and rear sights as well as the firing and safety assemblies.

Control and Guidance. After exiting the launch tube, spring-loaded fins deploy to provide aerodynamic stabilization in flight.

Warhead. The RPG-18, RPG-22, RPG-26, and RPG-27 each fire a specific warhead, as follows:

- RPG-18: 64mm High Explosive Anti-Tank (HEAT)
- RPG-22: 72mm HEAT
- RPG-26: Improved 72mm HEAT
- RPG-27: 105mm Tandem HEAT

All of the above warheads feature a piezoelectric nose fuze and base detonator; all the rocket munitions self-destruct four to seven seconds after launch.

Variants/Upgrades

Variants. Not generally applicable. The RPG-22 is an improved version of the RPG-18 that is so different from the original it carries a new designation. Likewise, the RPG-26 is essentially an improved version of the RPG-22. The RPG-27 is, in effect, a greatly scaled-up and improved RPG-26 offering much better armor perforation.

RShG-1

In 1995, Bazalt introduced the 105mm RShG-1 multipurpose weapon, which fires a fuel-air explosive

warhead. The 10-kilogram (22-lb) weapon has a range of 300 meters (328.1 yd) against light armor and fixed structures; it can engage personnel out to 700 meters (765.5 yd). The warhead can reportedly defeat up to 40 centimeters (15.75 in) of concrete.

Modernization and Retrofit Overview. Not generally applicable. The contractors integrate any product improvements to specific models as production cut-ins. Overall, each succeeding weapon represents a modernization of the preceding weapon.

Program Review

Background. The development of the RPG-18 began in the early 1970s in the former Soviet Union.

The LAW-ski

The weapon is clearly a close copy of the 66mm M72A2 Light Anti-tank Weapon, which saw considerable service in Vietnam with the U.S. Army and U.S. Marine Corps. Since Vietnam, the M72 LAW has been widely available on the international market.

The Soviet Ministry of Defense wanted an M72-like weapon to replace the RKG-3M anti-tank grenade. While this light grenade with its HEAT warhead was certainly an effective munition, its armor perforation performance was only around 17 centimeters (6.69 in). Moreover, like all hand grenades, its range was limited by the strength and technique of the soldier throwing it. A light M72-type weapon, while still limited in its ability to perforate armor, offered much longer range.

Reverse Engineering?

Since the Soviet engineers had the M72 to copy, development of the RPG-18 was fairly rapid; the RPG-18 Mukha entered service with the Soviet Army in

1976. The RPG-18 first came to the attention of the international market in the early 1980s when Mujahideen forces in Afghanistan employed captured RPG-18 weapons against Soviet and Afghan government troops.

Description. The RPG-18 is essentially a simple, single-shot, shoulder-fired anti-tank weapon consisting of a disposable telescoping launch tube containing an anti-tank rocket. The light metal alloy launch tube contains the sights as well as the safety and firing mechanisms.

Unlike the M72 LAW, a curved retaining catch on the left side of the RPG-18 launch tube prevents the operator from reclosing the weapon once it is extended into firing configuration.

Sequence of Operation

After removing the tube end caps, the operator extends the telescoping launch tube by pulling the front and rear in opposite directions. As the launch tube extends, the firing mechanism cocks itself and the sights pop up from their housings on the launch tube. The front sight

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is graduated at 50-meter intervals out to 200 meters, the maximum effective range of the weapon. Provided that the operator is no closer than 2 meters (6.56 ft) from a wall or closer than 20 centimeters (7.9 in) to the ground, he can fire the weapon from a standing, kneeling, or prone position.

The projectile arms itself between 2 and 15 meters (2.19 to 16.4 yd) from the weapon. If the rocket misses the target and the piezoelectric fuze does not activate in four to six seconds, the projectile self-destructs.

RPG-22

In the early 1980s, the Soviet Ministry of Defense required a beefed-up version of the RPG-18 to deal with the thicker armor of newer infantry combat vehicles. The RPG-22 Netto represented an incremental improvement of the RPG-18 and featured a larger HEAT projectile with an effective range of 250 meters (273.4 yd). The RPG-22 also features improvements in launch tube construction as well as in the firing mechanism.

Like the RPG-18, the RPG-22 first came to the attention of the international market when it appeared in Afghanistan in 1986, a year or so after its initial fielding with the Soviet Army.

RPG-26

This improved version of the RPG-22 first surfaced in 1991. While essentially the same as the RPG-22, the RPG-26 Aglen fires a smaller HEAT warhead that exhibits enhanced armor perforation. When it first appeared, the RPG-26 represented the latest in HEAT warhead designs based on Western technology.

RPG-27

In 1992, rumors of the Russians further developing the RPG-26 into another new weapon began to circulate in the international market. In February 1994, Rosoboronexport introduced the RPG-27 Tavolga at the Asian Aerospace exhibition. The RPG-27 fires a 105mm tandem HEAT warhead that can engage explosive reactive armor at an effective range of about 200 meters (218.7 yd); the weapon can also defeat 1.5 meters (4.92 ft) of reinforced concrete.

Operational Analysis. The RPG-18 and RPG-22 certainly lend credence to the old saw that imitation is the sincerest form of flattery, as these weapons are almost direct copies of the M72 LAW – right down to the large instruction/warning label on the launch tube.

Although these weapons are, by definition, "anti-tank" weapons, the best that the RPG-18, RPG-22, and RPG-26 can generally do against modern main battle tanks (such as the Challenger 2, Leopard 2, and M1 Abrams) is to immobilize them with a shot to the running gear. However, as light assault weapons against light armored vehicles and fixed structures, they are great assets to infantry units. Furthermore, the tandem warhead of the RPG-27 enables this weapon to engage the explosive reactive armor of the most modern armored fighting vehicles.

In Afghanistan, Soviet troops learned firsthand the effectiveness of the RPG-18 and RPG-22, albeit frequently from the wrong end. The Afghan Mujahideen captured these weapons in large numbers and used them to great effect against Soviet and Afghan government forces.

Funding

The Ministry of Defense of the Russian Federation funds the development and Russian Army procurement of the RPG-26 and RPG-27. The Bulgarian Ministry of Defense funded licensed production and Bulgarian Army procurement of the RPG-22.

Worldwide Distribution/Inventories

Export Potential. The RPG-26 and RPG-27 continue to dominate the international market for man-portable anti-tank weapons. Over the forecast period, combined production of the RPG-26 and RPG-27 will account for 65.85 percent of all new production, worth 36.98 percent of the total market value.

Countries. Aside from the **Russian Federation** and the other nations of the **Commonwealth of Independent States**, the following nations maintain either the RPG-18 or RPG-22 in their inventories: **Afghanistan** (RPG-18 and RPG-22, pre-OEF holdings), **Bulgaria** (RPG-18 and RPG-22), **Croatia** (RPG-22), the **Czech Republic** (RPG-18), the **Democratic People's Republic of Korea** (RPG-18), **Iraq** (RPG-18, pre-OIF holdings), **Panama** (RPG-18), the **Slovak Republic** (RPG-18 and RPG-22), and **Syria** (RPG-18).

RPG-18/RPG-22/RPG-26/RPG-27

This listing is probably not all-inclusive. In addition, the RPG-18 and RPG-22 have turned up in the hands of terrorist groups around the world. Furthermore, limited numbers of RPG-18 and RPG-22 weapons have turned up (captured or otherwise) in the inventories of **Germany, Israel, the United Kingdom, and the United States.**

To date, we have not identified any export sales of the RPG-26 or RPG-27.

Forecast Rationale

The Russian state enterprises Bazalt and Signal continue to produce the RPG-26 and RPG-27 man-portable anti-armor weapons for Russian Army procurement and possible export sales. The older RPG-18 and RPG-22 lines remain dormant.

Combined production of the Russian RPG-26 and RPG-27 will account for 66.8 percent of all new production, worth 37.9 percent of the total market value, over the next 10 years.

Market Dominance

Under the auspices of the Rosoboronexport organization, the combined output of the Russian defense contractors Signal and Bazalt will continue to dominate the market for man-portable anti-tank and bunker buster weapons, accounting for 81.58 percent of production, worth 58.69 percent of the total market value, during the forecast period.

Focus on Domestic Procurement

Although Rosoboronexport offers both the RPG-26 and RPG-27 on the international market, the Forecast International Weapons Group has not yet identified any export sales of these weapons. Nevertheless, Russian Army procurement will keep the RPG-26 and RPG-27 production lines busy for the next decade at least.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
Federal State Unitary Enterprise, Rosoboronexport												
RPG-26 Tube												
	1,064,720	25500	25500	25500	25500	25500	24000	24000	24000	23500	23000	246,000
RPG-27 Tube												
	1,888,741	54000	54000	54000	54000	54000	50001	50001	50001	49000	48000	517,003
Subtotal	2,953,461	79500	79500	79500	79500	79500	74001	74001	74001	72500	71000	763,003
Total	2,953,461	79500	79500	79500	79500	79500	74001	74001	74001	72500	71000	763,003