

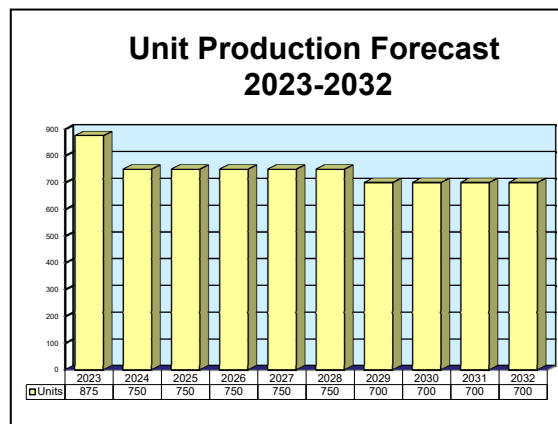
ARCHIVED REPORT

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APILAS

Outlook

- Sporadic French Army follow-on orders likely, to replace weapons lost through operational attrition
- Demand sufficient to support moderate level of production
- Forecast reflects orders from all sources, including possible French Army follow-on procurement



Orientation

Description. The APILAS (Armor Piercing Infantry Light Armament System) is a man-portable anti-armor weapon.

Sponsor. The prime contractor initially pursued the program as a private venture. The French Ministry of Defense, through the French Army, sponsored further development and French Army procurement of the APILAS.

Status. Development through serial production.

Total Produced. Through 2022, we estimate the prime contractor produced at least 156,166 APILAS munitions.

Application. A lightweight, man-portable, shoulder-fired anti-armor weapon system optimized for use by infantrymen.

APILAS fills the French Army's 300- to 600-meter (328.08- to 656.16-yd) range requirement for the Anti-Char Courte Portée (short-range anti-tank weapon).

Price Range. In the French Army's initial 1984 procurement contract, the APILAS carried a unit price of \$2,400.

In 2023 U.S. dollars, the APILAS reportedly maintains a unit price of \$6,062.

Contractors

Prime

Nexter Munitions	http://www.nexter-group.fr , Route de Villeneuve, La Chapelle, Saint-Ursin, France, Tel: + 33 02 48 68 71 71, Fax: + 33 02 48 68 70 54, Prime
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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

APILAS**Technical Data**

Design Features. The advanced-design warhead makes the APILAS among the best weapons of its type.

Dimensions. The following data reflect the current production standard. The total diameter includes the sighting and firing component.

	<u>SI Units</u>	<u>U.S. Units</u>
Projectile length	92.5 cm	3.03 ft
Total length	1.27 m	4.16 ft
Projectile diameter	112 mm	4.41 in
Total diameter	19.7 cm	7.76 in
Projectile weight	4.3 kg	9.46 lb
Total weight	8.9 kg	19.58 lb
Finspan	18.5 cm	7.28 in
Cone standoff	3.2 cal	3.2 cal

Performance. The armor perforation data reflect our standardized formula applied to the APILAS warhead. The contractor claims an average perforation of 72 centimeters (28.35 in) through multiple plates of rolled homogeneous armor.

	<u>SI Units</u>	<u>U.S. Units</u>
Speed	293 m/sec	961.27 ft/sec
Altitude	Line of sight	Line of sight
Range (from shoulder)	400 m	437.4 yd
Armor perforation	68.04 cm	26.78 in

Propulsion. The APILAS munition employs a solid fuel rocket motor with more than 20 tonnes (22.04 tons) of thrust.

Launcher Mode. The APILAS munition launches from a filament-wound Kevlar launch tube. The operator disposes of the tube after firing.

Control & Guidance. After the munition exits the launch tube, 12 spring-loaded fins deploy, imparting a 15-revolution-per-second rotation to the munition for aerodynamic stabilization.

Warhead. The APILAS munition mounts a 1.5-kilogram (3.3-lb) High Explosive Anti-Tank (HEAT) warhead, exhibiting an advanced-design shaped-charge configuration. A crush fuze assures detonation at low angles of incidence.

The prime contractor asserts the latest production version is capable of defeating explosive reactive armor (ERA). Although the prime contractor has not offered specific technical data, a tandem shaped-charge warhead is probable.



APILAS Weapon System

Source: Finnish Defense Forces

Variants/Upgrades

Variants. The prime contractor has adapted the basic APILAS to several different configurations. The following table reviews the major APILAS variants over the course of the program.

<u>Designation</u>	<u>Description</u>
APILAS	Basic production standard, firing HEAT warhead.
Enhanced APILAS	Enhanced warhead APILAS, introduced in 1988. Current production standard; may mount a tandem shaped-charge warhead.
Enhanced-Range APILAS	Enhanced-range APILAS, introduced in 1989.
Training APILAS	Operational training simulator; fires French Army standard 7.5x54mm tracer rounds as subcaliber devices.
Robotic Ranger	In 1984, (then) Grumman displayed an engineering model of a three-wheeled, remotely controlled, electrically powered vehicle mounting two APILAS launchers. The vehicle mounted a low-light electro-optical observation device and was linked to its control station via a multichannel fiber-optic line. The program fell dormant in the late 1980s.
Ajax/APILAS	In the mid-1980s, (then) British Aerospace began the development of a side-attack anti-tank mine system employing the APILAS munition and the Ajax multisensor system. The entire system weighs about 12 kilograms (26.4 lb); it reportedly features a sensor range of 200 meters (218.72 yd). Although BAE Systems still reportedly offers the Ajax/APILAS for orders, the system has yet to score its first sale.
Aimed Controlled Effect Anti-Tank Mine (MINOS)	In 1986, France, Germany, and the U.K. began a trinational program to develop a more sophisticated off-route mine system, broadly based on the Ajax/APILAS. The participants have since abandoned the MINOS program (originally called MACPED).

Modernization and Retrofit Overview. Generally not applicable. The prime contractor incorporates any product improvements as production cut-ins.



APILAS Ready to Fire

Source: Finnish Defense Forces

Program Review

Background. Since its establishment in 1920, the Manurhin firm has produced various types of ordnance and munitions. In 1969, Manurhin (and two other equal shareholders) established the SERAT/STRIM military ordnance/ammunition design bureau, leading to a unique relationship between the companies.

Successful First Steps

In 1978, Manurhin teamed up with SERAT/STRIM to produce a successor to its very successful Lance-Roquette Anti-Char de 89 anti-tank weapon. Despite the fact that the Lance-Roquette Anti-Char de 89 features 1960s technology, it is still highly effective against most armored targets and is still in widespread use.

APILAS

Manurhin and SERAT brought together many members of the original ACL 89/Lance-Roquette Anti-Char de 89 design team to work on the new project, originally designated ATILA (Anti-Tank Infantry Light Armament). The work began as a private venture in anticipation of the French Army's 1979 Anti-Char Courte Portée requirement.

Corporate Evolution

In 1990, as a part of the continuing consolidation of the French armaments industry, the restructured Giat Industries (the former Groupement Industriel des Armements Terrestres) absorbed Manurhin. The contractor then operated as a component of the Weapons and Ammunition (formerly Euroimpact) Division of Giat Industries.

In October 2006, Giat Industries approved a reorganization and an associated name change to Nexter.

In 2015, Krauss-Maffei Wegmann and Nexter signed an agreement on a merger plan. Completion of the merger of KMW and Nexter was formally announced in January 2016.

The merged firm is the third-largest land defense contractor in the world, behind General Dynamics and BAE Systems. Ownership is split between the French government's Giat Industries holding company and KMW parent the Wegmann Group (controlled by Germany's Bode family).

Anti-Char Courte Portée Requirements

The design team adhered to several criteria in designing the new weapon:

- The weapon must be capable of not only immobilizing a tank but also destroying it.
- The weapon must be easily upgradeable for use against future tanks.
- The weapon must be man-portable.
- The launcher must be disposable.
- The warhead must exhibit an armor-perforation capability at least equal to the MILAN anti-tank missile.

- The warhead must be capable of destroying a tank from a head-on aspect.

Description. The APILAS consists of an anti-tank munition in a disposable launch tube, which is watertight and highly resistant to environmental effects and rough handling. In addition, APILAS is very resistant to static electricity, stray electric charges, and electromagnetic pulses (EMP). For transport and storage, a waterproof, buoyant container houses two complete weapons.

The operator can quickly mount an optional four-power telescope on the launch tube; the weapon is equally compatible with either right- or left-handed troops. A mechanical safety device within the munition ensures that the warhead cannot arm itself until it has traveled 10 meters (10.93 yd) after launch. The warhead is fully armed 25 meters (27.3 yd) after launch.

Sequence of Operation

After removing the protective end caps from the launcher tube, the operator activates the battery circuit and releases the mechanical safety lock. The operator acquires the target through the integral sights and depresses the arming switch, firing the weapon. The APILAS is a disposable, fire-and-forget weapon system.

Testing & Performance

The contractor fired 3,000 rounds at NATO-standard targets, obsolete tanks, and concrete target blocks during the initial testing for the French Army.

The APILAS warhead is reportedly capable of perforating up to 80 centimeters (31.49 in) of homogeneous armor at a 50-meter (54.68-yd) range. The APILAS has also reportedly perforated up to 200 centimeters (6.56 ft) of reinforced concrete from the same distance.

In terms of accuracy, the APILAS is reportedly capable of maintaining a 28-centimeter (11.02-in) total dispersion at a 350-meter (382.76-yd) range.

According to the contractor, the APILAS remains one of the few truly man-portable systems of reasonable weight that can successfully engage main battle tanks over the frontal arc. The contractor claims the APILAS can also successfully engage explosive reactive armor.

Funding

The contractor initially funded the APILAS as a private venture. The French Ministry of Defense, through the French Army, funded further development and French Army procurement of the APILAS.

Worldwide Distribution/Inventories

Export Potential. Although the French Army selected the APILAS for its interim Anti-Char Courte Portée mission, the contractor designed the weapon specifically for the export market. APILAS performed well in combat during the Iran-Iraq War (1980-1988) and with French forces in Chad, where the French credited the APILAS with the destruction of an unknown number of Libyan tanks. The weapon performed exceptionally well with French forces during Operation Desert Storm (1991), further enhancing its marketability.

Iraq placed the first export order for the APILAS in 1982. In July 1986, Finland placed the second APILAS export order, worth \$59.7 million. In late 1986, Italy and Jordan joined the growing list of APILAS customers; an unidentified customer in Africa also purchased the APILAS. In Angola, UNITA forces reportedly employed the APILAS in combat. The APILAS remains popular on the international market.

Countries. The APILAS has been in service in the following nations: **Belgium, Chad, Finland, France, Iraq, Italy, Jordan, Republic of Korea, Saudi Arabia, Republic of China (Taiwan), and Spain.** At least four customers remain unidentified, including possibly **Greek-Cypriot forces** on the island of Cyprus.

Forecast Rationale

Although sales of APILAS (Armor Piercing Infantry Light Armament System) pale in comparison to those of some of its competitors, international demand for this weapon system is sufficient to keep the program active. The APILAS has accrued a respectable operational record in Africa, Asia, the Balkans, and the Middle East.

Impressive Performance

According to the contractor, the APILAS remains one of the few truly man-portable systems of reasonable weight that can successfully engage main battle tanks over the frontal arc. The contractor

claims that the APILAS can also successfully engage explosive reactive armor. Nexter continues to emphasize the effectiveness of the APILAS against armored vehicles to potential customers on the international market.

Staying Alive

Nexter completed APILAS production for the French Army in 2007. However, the Forecast International Weapons Group believes that the French Army will sporadically place additional orders to compensate for operational attrition of this disposable anti-armor weapon system. In the meantime, the contractor will continue promoting export sales to keep the program alive.

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	
Nexter Munitions												
APILAS Tube												
	156,166	875	750	750	750	750	750	700	700	700	700	7,425
Total	156,166	875	750	750	750	750	750	700	700	700	700	7,425