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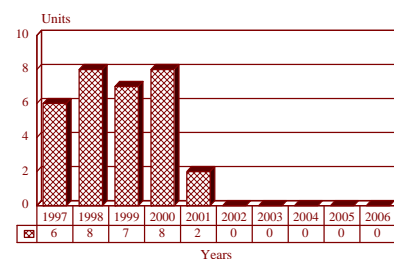
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## Artemis 30 Twin 30 mm Towed Anti-Aircraft Artillery System - Archived 6/98

### Outlook

- Production ongoing for the domestic requirement
- System being offered for export
- Artemis 30 system being upgraded by integration with FIM-92 missile system
- Further fire control upgrades expected in the outyears

10 Year Unit Production Forecast  
1997-2006



### Orientation

**Description.** A towed anti-aircraft artillery system

**Sponsor.** The development and Greek procurement of the Artemis 30 system is sponsored by the Hellenic Ministry of Defense through the Hellenic Army with support from the other Greek armed services.

**Contractors.** The overall system was developed and is manufactured by Hellenic Arms Industry SA; Athens, Greece. The major subcontractors include Kuka Wehrtechnik, Mauserwerke, Philips Elektroindustrie and Siemens AG.

**Licensees.** None

**Status.** This system is in serial production for the Hellenic Armed Forces. In 1994, the procurement program was suspended for a time pending an investigation of the system's ability (including in a modified form) to meet the mission requirement; this

suspension was lifted shortly thereafter and the system is in serial production and in service with the Hellenic Armed Forces. Development of the system continues.

**Total Produced.** As of January 1, 1997 a total of 44 Artemis 30 towed artillery systems (two cannon per carriage) had been manufactured.

**Application.** A mobile low-altitude cannon-based anti-aircraft artillery system effective against aircraft and some missiles.

**Price Range.** The Artemis 30 is listed at \$993,000 for a single system (two cannon on a carriage). An entire Artemis 30 air defense system, consisting of eight systems (sixteen cannon), battle coordination post with radar and computers, and two fire-control trucks has a unit price of around \$13.4 million. All prices are in equivalent 1997 United States dollars.

## Technical Data

**Crew.** For one weapon, two gunners; for an entire system described above, nine men are required.

**Cannon Type.** Mauser MK 30 Model F

**Muzzle Brake.** Multiport

**Recoil System.** Mechanical (spring) and hydraulic

**Breech Mechanism.** Cylindrical bolt with locking levers

**Carriage Type.** Four wheel with outriggers

**Shield.** None

**Ammunition.** The MK 30 Model F cannon of the Artemis 30 system is chambered for standard 30x173 ammunition in the following types: Armor Piercing Discarding Sabot, Semi-Armor Piercing High Explosive Incendiary, High Explosive Incendiary Tracer, Target Practice Tracer and Target Practice.

**Dimensions.** The following data are for the latest pre-production version of the carriage and cannon for the Artemis 30.

	<b>SI units</b>	<b>US units</b>
Caliber	30 millimeters	1.18 inches
Length overall	7.95 meters	26.08 feet
Traveling width	2.38 meters	7.81 feet
Firing width	8.27 meters	27.13 feet
Traveling height	2.25 meters	7.38 feet
Firing height	2.25 meters	7.38 feet
Total weight	6.9 tonnes	7.61 tons

**Performance.** The muzzle velocity figure is with the standard Armor Piercing High Explosive Incendiary ammunition.

Cannon elevation	+85°	+85°
Cannon depression	-5°	-5°
Cannon traverse	360°	360°
Effective range	3,500 meters	3,827.63 yards
Rate of fire (total)	1,600 rounds per minute	1,600 rounds per minute
Muzzle velocity	1,025 meters per second	3,362.82 feet per second

The Artemis 30 cannon is normally towed by a 2 1/2 ton class truck.

## Variants/Upgrades

**Variants.** Not applicable at this time, although the Artemis system integrated with the FIM-92 Stinger missile or some other missile could eventually be offered as a variant to the standard Artemis system. The manufacturer has also proposed that the Artemis 30 system be integrated with the Steyr-Daimler-Puch 4K7FA tracked vehicle which is manufactured in Greece as the Leonidas. As of early 1997, nothing additional had been heard regarding this proposal.

A navalized version of the Artemis 30 is in development

**Modernization and Retrofit Overview.** In the mid-eighties, Hellenic Arms was funded to study, develop and integrate a surface to air missile system with the Artemis fire control unit. In late 1986, it was announced that the Thomson-CSF Crotale surface to air missile system, based on the Matra R.440 missile and called Apollo by the

Greeks, would be integrated with the Artemis 30 as a complete air defense system. However, for an as yet unexplained reason, this plan fell through.

At the 1996 Defendory weapons fair, it was announced that the FIM-92 Stinger surface to air missile would be integrated with the Artemis 30 anti-aircraft system. The German Lenkflugkörpersysteme firm, a component of Daimler Benz Aerospace and European licensee for the production of the Stinger, has teamed with Hellenic Arms for the integration. As of the time of the announcement, this development effort was being privately funded in anticipation of a domestic requirement. The revised Artemis system mounts a launch pod of two FIM-92 missiles above each of the 30 millimeter cannon. While a standard optical sight is used, the Pilkington LITE sighting system can be fitted for around-the-clock engagements.

## Program Review

**Background.** Recent conflicts across the world have demonstrated the continued effectiveness of anti-aircraft artillery against low-flying aircraft and missiles. Consequently, renewed attention has been directed toward these systems from the world's armed forces. In the late seventies, Hellenic Arms Industry, an up and coming manufacturer in Greece, began its effort to develop new anti-aircraft artillery systems to meet the increased demand; the Greek Ministry of Defense stated a requirement for such a system for the Hellenic Army and Air Force.

In order to gain experience in the anti-aircraft artillery field in addition to getting a system on the market as soon as possible, Hellenic Arms decided to integrate the well known and proven Mauser MK 30 Model F cannon with an indigenously developed dual mount carriage.

**Description.** The Mauser MK 30 Model F cannon is already used on the Wildcat self-propelled anti-aircraft artillery system (see separate report) along with an Italian OTOBREDA naval pattern anti-aircraft system. Of 30 millimeters caliber, the MK 30 Model F is a gas-operated cannon which incorporates a unique floating action in which the cartridge is fired out of battery – as the cannon's bolt assembly is moving forward. This enables the ordnance mass to partially overcome some of the firing forces. This reduces trunnion pull, enabling the cannon to be mounted on relatively light vehicles. The Mauser MK 30 Model F is highly adaptable to a number of configurations: single- or dual-belt feed from the left, right or from above via a gear-driven system operating off propellant gases. Electric or manual charging is possible, and heavy or light barrels are available. The MK 30 Model F has only 12 moving parts.

The Artemis 30 towed component (called the Artemis 30 Twin Cannon Carriage by the contractor) consists of two MK 30 Model F cannon mounted on a wheeled carriage. The front axle detaches when the system is deployed and the supporting arms extended. A generator is mounted to supply the needed electric power for operation of the system. While the Artemis 30 can be operated autonomously, the weapon achieves its greatest flexibility and efficiency when operated as part of a eleven unit battery, in which eight units are the firing components (the carriages each mounting two cannon), one unit is the Battle Coordination Post, and the last two units are the Fire Control Centers.

The Artemis 30 system can be easily integrated with a variety of existing fire control systems. The contractor has collaborated with various firms in this field regarding the

integration of these fire control systems with the Artemis 30.

As it is now deployed, the Artemis 30 anti-aircraft artillery system is configured in the following manner:

The Battle Coordination Center incorporates the X (I) band pulse-Doppler acquisition radar capable of detecting targets at 30 kilometer (18.64 mile) ranges. A secondary Ku (J) band radar is used for tracking and identification purposes and is capable of tracking up to 20 targets simultaneously. A command/control computer is also provided. The target data are then transmitted via land line to the Fire Control Centers. The Fire Control Centers can each direct up to six Artemis 30 systems (12 cannon) with passive, semi-active or active operation depending on the choice of sensors. An electro-optic system with an auto tracker, tracking radar, with an infrared camera with an auto tracker and a laser rangefinder are provided at the user's option. These components are mounted on a common pedestal placed on a militarized truck/trailer vehicle. A single operator is required for the system. The Artemis 30 fire unit can be set up to operate by remote control.

**Procurement Plans.** On October 15, 1984, Greece ordered the Artemis 30 into production for all three services. The standard towed version is planned for delivery to the Army and Air Force, while a slightly modified version was to be developed for the Navy. In addition, Hellenic Arms was requested to study, develop and integrate a surface to air missile system with the Artemis fire control unit. In late 1986, it was announced that the Thomson-CSF Crotale surface to air missile system, based on the Matra R.440 missile and called Apollo by the Greeks, would be integrated with the Artemis 30. However, as noted above, for some reason, this has not come to pass and the FIM-92 Stinger is now being integrated with the system.

**Troubles in the Program.** As of late 1993, the Artemis 30 had not yet entered full scale serial production, even though it was ordered a decade earlier. In 1994, the procurement of the system was suspended pending the outcome of an investigation of the system's ability (including in a modified form) to meet the mission requirement. Our research has found that the Artemis 30 system was considered deficient in performance in a number of areas not related to the cannon itself. While details are not available, the evidence indicates that the Artemis 30, as did not fully meet the operational requirements established for it. However, after a reevaluation of the system, the Hellenic Army ordered it back into production with upgrades expected in the future.

## Funding

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The development and procurement of the Artemis 30 is funded by the Hellenic Ministry of Defense; no other details are available.

## Recent Contracts

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None, as contractual information is not made available by the contractor or the Greek government.

## Timetable

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This timetable is applicable to the Artemis 30 only, and to no other system using the MK 30F cannon.

	1979	Development initiated
Late	1981	Prototype fabricated
	1982	Prototype tested
Oct	1982	Artemis 30 displayed at Defendory 1982 Arms Fair
Oct	1984	First orders placed by Greece
	1985	Production of components began
May	1987	Deliveries for operational evaluations made
	1987-1993	Extended operational evaluations ongoing
	1994	Procurement suspended for further evaluations
	1996	Integration with FIM-92 Stinger missile announced
Mid	1997	System in production; continued development ongoing

## Worldwide Distribution

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**Export Potential.** While Hellenic Arms is new to the anti-aircraft market, it has used as its basis a cannon manufactured by one of the world's oldest and most highly respected firms. On first thought, this should certainly enhance the marketability of the Artemis 30. However, the system's still undefined troubles are now well known and only time will tell if it ever is procured by Greece let alone accepted on the export market. The fact that the system is now in service with Greece plus the future upgrade integrating the FIM-92 missile is expected to enhance the marketability of the Artemis 30. Potential customers for Artemis 30 include those nations not willing or able to deal with one or another of the larger nations exporting such systems. Spain and various African countries are prime prospects along with several Middle East nations. A major problem that Hellenic Arms will face when marketing the Artemis 30 is that Greece, being relatively poor, will not be able to duplicate the marketing incentives of the more affluent nations. Another problem is that this market is dominated by Örlikon-Contraves, Bofors, and General Dynamics, giant firms with well established reputations and client bases.

Countries. **Greece** (44)

## Forecast Rationale

Our latest review of the still relatively unknown Artemis 30 program finds that, as of mid-1997, the production of this twin anti-aircraft artillery system is ongoing for the domestic requirement. Our research indicates that the Greek (not including naval) requirement is for 72 systems; this should be met by 2001. For the present, for the reasons noted above, we

are not forecasting any export of the Artemis 30. However, the integration with the FIM-92 Stinger missile could change this and we will continue to monitor this program. If new information comes in that could change our forecast, we will update this report on an interim basis.

We wish to note that the numbers in our forecast chart are for cannon systems, that is, two MK 30 Model F cannon on a carriage.

## Ten-Year Outlook

### ESTIMATED CALENDAR YEAR PRODUCTION

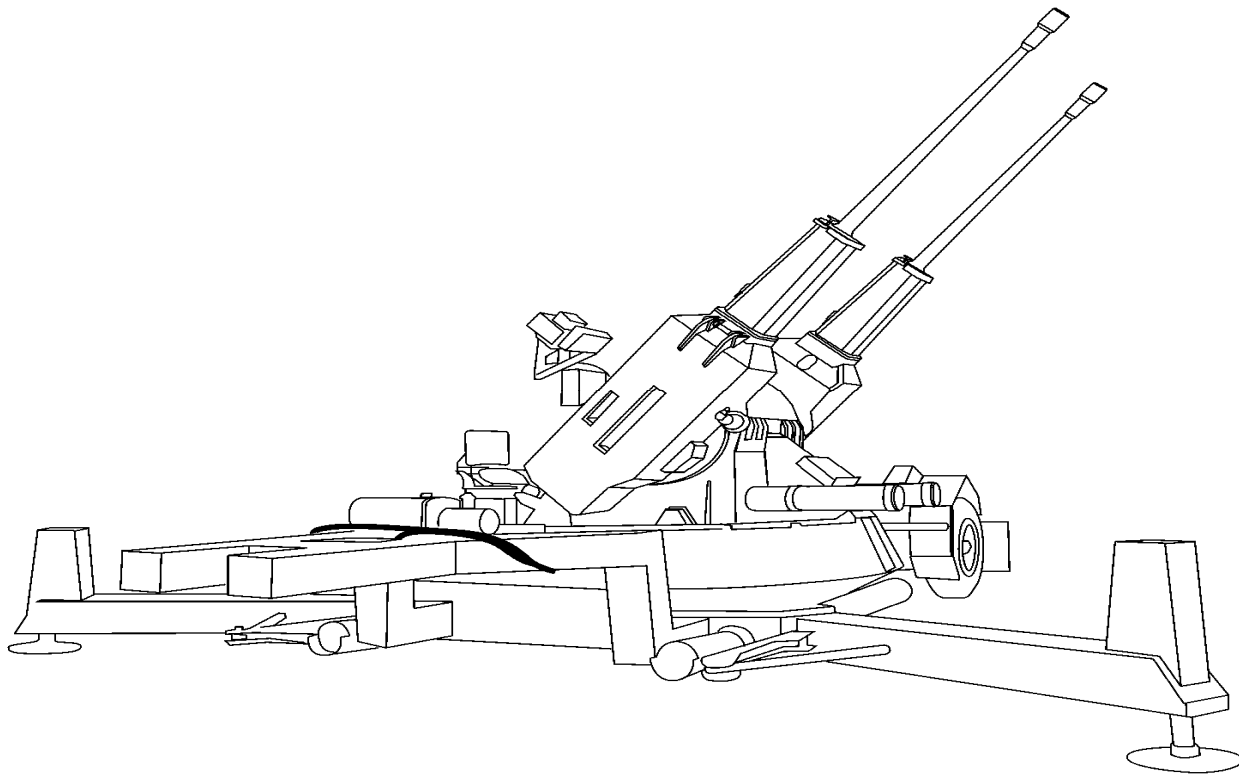
Ordnance (Engine)	through	High Confidence Level				Good Confidence Level			Speculative			Total 97-06	
		96	97	98	99	00	01	02	03	04	05		06
HELLENIC ARMS INDUSTRY SA													
ARTEMIS 30 <sup>(a)</sup> NO ENGINE		44	6	8	7	8	2	0	0	0	0	0	31
Total Production		44	6	8	7	8	2	0	0	0	0	0	31

<sup>(a)</sup> The through 1996 production includes three developmental prototype systems with each system consisting of a carriage mounting two cannon. The forecast numbers DO NOT relate to the battery coordination post vehicle or the two fire control vehicles.



Artemis 30 System

Source: Hellenic Arms Industry



Artemis 30

Source: Hellenic Arms Industry