

# ARCHIVED REPORT

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## MILAS

### Outlook

- Production has ended
- End of Soviet submarine threat diminished demand for MILAS
- MILAS did not do well following the end of the Cold War
- Italian Navy is the only operator of MILAS
- France declined to acquire the MILAS despite being part of the design program
- Further orders never materialized

### Orientation

**Description.** Surface-launched, anti-submarine warfare (ASW) missile that uses a torpedo as a warhead.

**Sponsor.** Délégation Générale pour l'Armement (DGA), with funding from France and Italy.

**Status.** Production concluded. Approximately 20 preproduction missiles were built in 1993 and 1994. Italy procured the MILAS, but France chose not to procure this system.

**Total Produced.** Some 266 MILAS missiles (not including RDT&E units) were built.

**Application.** MILAS is intended to arm surface warships for use against submarines.

**Price Range.** The cost of the MILAS anti-submarine weapon has been estimated at \$557,000, although the price could vary depending on the torpedo used. The torpedo could cost between \$150,000 and \$1 million.

### Contractors

#### Prime

<b>MBDA Italia</b>	<a href="http://www.mbda-systems.com">http://www.mbda-systems.com</a> , Via Tiburtina 12,400 e, Via di S. Alessandro 8-10, Rome, Italy, Tel: + 39 06 41971 11, Prime
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#### Subcontractor

<b>Roxel France, (Protac)</b>	<a href="http://www.roxelgroup.com">http://www.roxelgroup.com</a> , Route d'Ardon, La Ferté-Saint-Aubin, France, Tel: + 33 2 38 51 66 66, Fax: + 33 2 38 51 66 33 (Booster Motor)
<b>Safran Helicopter Engines, (Turbomeca)</b>	<a href="http://www.safran-helicopter-engines.com">http://www.safran-helicopter-engines.com</a> , Avenue Joseph Szydlowski, Bordes, France, Tel: + 33 5 59 12 50 00, Fax: + 33 5 59 53 15 12 (Arbizon III Turbojet)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; [rich.pettibone@forecast1.com](mailto:rich.pettibone@forecast1.com)

**MILAS****Technical Data**

	<u>Metric</u>	<u>U.S.</u>
<b>Dimensions</b>		
Length overall	6 m	19.68 ft
Diameter of body	46 cm	1.51 ft
Diameter of booster	106 cm	3.48 ft
Weight (missile and torpedo)	800 kg	1,760 lb
Weight (weapon and container)	1,800 kg	3,960 lb
<b>Performance</b>		
Speed	Mach 0.9	Mach 0.9
Range (min)	5 km	3.105 mi
Range (max)	55 km	34.155 mi

**Propulsion.** The boosters are two Protac (formerly Hotchkiss-Brandt/SNPE) composite solid-propellant motors (weighing 75 kg), providing 3,500 kilograms (7,716 lb) of thrust, which burn for four seconds and are jettisoned. The sustainer engine is a Turbomeca Arbizon IIID turbojet.

**Control & Guidance.** The missile is guided by an autonomous strapdown inertial navigation system. The system is equipped with a datalink, allowing the flight profile to be updated based on data received after launch. Once the torpedo is in the water, antennas and

sonars search below the surface for a target as part of a preprogrammed pattern.

**Launcher Mode.** Ship-launched from prepackaged containers that also serve as launchers. MILAS is launched from the same canisters used to store the OTOMAT anti-ship missile.

**Warhead.** The Italian government planned to use the MU-90 Impact torpedo with its MILAS ASW systems. The MILAS is capable of carrying other lightweight torpedoes, including the Italian A-244, the U.S.'s Mk 46 and Mk 50, the U.K.'s Stingray, and the MU-90.



MILAS Torpedo-Carrying Missile

Source: MBDA

## Variants/Upgrades

Only a single version of MILAS was produced. For additional information, please see the pertinent entries in the **Program Review** section.

## Program Review

**Background.** Missile de Lutte Anti-Sous-marine (MILAS) is an outgrowth of the OTOMAT program, a joint venture between (then) Oto Melara and Matra (see the "OTOMAT" report in this service) that began in the late 1960s. Oto Melara later became part of Finmeccanica (now Leonardo), and its missile interest was merged with that of Alenia into Alenia-Oto Sistemi Missilistici, which has since become Alenia Marconi Systems.

Alenia and Matra (now part of MBDA) developed MILAS to meet France's and Italy's long-range anti-submarine shipborne requirements. The concept of using OTOMAT as the airframe for carrying a torpedo over extended ranges was first unveiled by its designers at the Le Bourget Navale show in October 1986. At the June 1987 Le Bourget (Paris) Air Show, Matra released the first major details of the new MILAS torpedo-carrying missile, which was aimed at replacing the aging Malafon system. The basic OTOMAT missile's warhead and seeker sections are replaced with the selected torpedo; the other components are left unaltered.

In the French Navy, the system was to have carried the DCN Murene lightweight torpedo, to be provided by ECAN, and the Italian fleet was to use the Whitehead A290. However, those torpedo programs were merged in 1991 and redesignated MU-90 Impact.

The missile is sealed in an individual container mounted on the deck of a warship in twin or quadruple mounts. The total weight of the container and missile is 1,800 kilograms (3,960 lb). The system has a total weight of 800 kilograms (the torpedo is 230 kg), a diameter of 46 centimeters (106 cm with boosters), a length of 6 meters, and a range of 5 to 55 kilometers. The missile is capable of trajectory updating until the torpedo is released.

The target is detected and classified by the ship's sensor systems. Once the target is within range, target information is transmitted to the missile and attack data to the torpedo. The MILAS is then launched, entering its boost phase when the missile accelerates to cruising speed. Once achieved, the twin boosters mounted on either side of the missile are ejected. The MILAS's main propulsion system, a turbojet engine, then takes over and the missile remains at a constant height and subsonic cruising speed.

Should the target change course, speed, or depth, this information is relayed to the missile in flight so that it arrives at the optimum position. Upon arrival at the target area, the turbojet is shut down. The torpedo then separates from its missile carrier and descends slowly via parachute. After the torpedo hits the water, antennas and sonars search below the surface for a target as part of a preprogrammed pattern. When a submarine is detected, a terminal guidance system directs a shaped charge against it.

### *Operational Debut Delayed*

The first two development firings were conducted in June 1989. The purpose of those trials was to validate separation of the torpedo from its carrier. Flight trials of a prototype MILAS commenced in 1992 and were completed in 1994.

MILAS's in-service date with the French Navy was pushed back from an original estimate of 1993 to 1996. MILAS was to replace the French Navy's aging Malafon ASW system on its F67 and F70 frigates during their midlife refits. However, after France completed its strategic review, the government announced in April 1998 that it would support the program through its development phase but would not procure the system.

## Related News

**Iran Constructing New Naval Vessels** – Iran's Navy will soon receive a new patrol craft as well as a new submarine, according to Iranian officials. The vessels will enter service with the country's Northern Fleet, located in the Caspian Sea.

Fars News quoted First Capt. Ahmad Reza Baqeri as saying, "The fourth Peykan-class warship is being built by Bandar Anzali's Shahid Tamjidi naval industries."

## MILAS

Discussing the same warship as well as a submarine, Rear Adm. Habibollah Sayyari noted, "The missile-launching warship named *Separ* and the submarine *Fateh* will join the Navy in the near future."

Officials did not say when these vessels will be complete and ready to enter service, though Admiral Sayyari said that *Separ* would be commissioned during the current Iranian year, which began in March. (FARS, 4/17)

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## Funding

The Italian Navy did not put as much money into procurement of MILAS as once anticipated. The end of the Cold War removed much of the demand for systems like MILAS. France, a codeveloper of MILAS, has since decided not to purchase the missile system.

### Italian Defense Budget Figures\*

	<u>FY14</u>	<u>FY15</u>	<u>FY16</u>	<u>FY17</u>	<u>FY18</u>
Euros	13.59	13.19	13.36	13.25	13.10
U.S. dollars	18.00	14.60	14.70	15.02	14.85

\*All values in billions.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Oct	1986	OTOMAT proposed as the airframe for MILAS
	1989	Flight trials of MILAS commence
Apr	1994	MILAS service entry delayed
	1996-97	MILAS low-rate production
	1998	France announces it will not procure MILAS
	2000	Italy places MILAS order
	2002	Production underway at a low rate
	2012	Production concludes
	2014	Iran mentions MILAS-like system
	2015	South Korea operating system similar to MILAS
	2017	Worldwide submarine fleets continue to grow

## Worldwide Distribution/Inventories

**Italy** was the only customer for MILAS. Countries mentioning an interest in MILAS included Chile, Saudi Arabia, and the United Arab Emirates. MILAS generated some interest among countries in Southeast Asia. However, MBDA received no procurement commitments from any nation.

**Iranian ASW Missile.** Iran continues to make claims concerning new military equipment. Rear Adm. Habibollah Sayyari, commander of the Iranian Navy, said in 2014 that the service's new domestically built Jamaran destroyer class is outfitted with an anti-subsurface missile system (similar to ASROC and MILAS). The first 1,420-ton Jamaran destroyer entered the waters of the Persian Gulf in February 2010.

Iran did not provide details on this anti-subsurface missile system. Iran also says the Jamaran destroyer is equipped with a modern radar system and has a top speed of 30 knots. The destroyer also has a helicopter landing pad.

The status of this anti-submarine missile system is unknown. One source believes that Iran actually equipped this destroyer with a 324mm lightweight torpedo system and not a long-range ASW missile.

**User Country.** **Italy** was the first (and only) operator of the MILAS.

## Forecast Rationale

From time to time, navies examine the idea of engaging submarines at longer ranges. Interest in this capability rises and then falls. Europe and the United States did develop long-range anti-submarine weapons, specifically the MILAS and ASROC.

The Cold War spurred development of long-range shipborne anti-submarine missiles. The end of this era and the collapse of the communist regimes in Europe had the opposite effect.

The MILAS had the misfortune of appearing just as the Soviet submarine threat evaporated. The Soviet Navy's submarine fleet, the largest ever deployed, posed a significant threat. The MILAS offered surface warships the ability to launch attacks beyond the range of a submarine's onboard weaponry.

The future for the MILAS appeared bright. Then the Cold War ended. The new Russian government quickly began to scrap surface warships and submarines that it no longer needed. Today, the Russian Navy's submarine fleet is far smaller and much less of a threat.

The Cold War fueled demand for the MILAS, but its end took this driving force away. With the threat receding, NATO decided to rely on helicopters and fixed-wing aircraft to engage hostile submarines. The potentially bright future for MILAS faded along with communism in Europe. Even before the fall of the Soviet regime, many navies were rethinking their need for extended-range ASW weapons.

Today, navies place much less emphasis on engaging submarines at long ranges. The only customer for the MILAS is the Italian Navy. This situation will not change in the future.

MBDA had hoped that integration of the MILAS on the Italian Navy's new Frigate Européenne Multi-Mission (FREMM) might result in some export sales of this missile. The FREMM is a joint design effort between France and Italy. This proposal generated little interest among potential FREMM clients, however, ending all chances of MILAS export orders.

Production of the MILAS is complete. The overall number of MILAS units built is insignificant.

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