

# ARCHIVED REPORT

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## Dassault Mirage 2000 - Archived 3/2009

### Outlook

- Production ended when last of 15 aircraft ordered by Greece were delivered in 2007
- Contender for India's 126-aircraft fighter program, but withdrawn by Dassault to focus sales efforts on Rafale

### Orientation

**Description.** Single-engine, single-seat interceptor and two-seat nuclear strike fighter.

**Sponsor.** French Ministry of Defense.

**Licensees.** Arab Organization for Industrialization, Aircraft Factory 36, Helwan, Egypt.

**Status.** Production ended.

**Total Produced.** Through 2007, approximately 607 (excluding prototypes) were produced, of which 321 were for France's Armée de l'Air.

**Application.** Interceptor/air superiority, reconnaissance, close support, nuclear strike.

**Price Range.** Flyaway unit cost approximately \$45 million in 2008 dollars.



Dassault Mirage 2000

Source: French MoD

### Contractors

#### Prime

Dassault Aviation

<http://www.dassault-aviation.com>, 78, quai Marcel Dassault, Cedex 300, Saint-Cloud, 92 552 France, Tel: + 33 1 4711 4000, Fax: + 33 1 4711 5660, Email: [presse@dassault-aviation.fr](mailto:presse@dassault-aviation.fr), Prime

## Dassault Mirage 2000

## Subcontractor

<b>Centre D'Essais Aeronautique</b>	<a href="http://www.defense.gouv.fr/sites/dga/dossiers/le_centre_essais_aeronautique_de_toulouse_e_ceat">http://www.defense.gouv.fr/sites/dga/dossiers/le_centre_essais_aeronautique_de_toulouse_e_ceat</a> , Toulouse, France (Aerolor Brake Disc)
<b>EADS France SAS, Division HQ</b>	<a href="http://www.eads.com">http://www.eads.com</a> , 37, Boulevard de Montmorency, Paris, 75781 France, Tel: + 33 1 42 24 24 24, Fax: + 33 1 45 24 54 14 (UHF/VHF Equipment)
<b>Hellenic Aerospace Industry - Athens Office</b>	<a href="http://www.haicorp.com">http://www.haicorp.com</a> , Athens Tower, 2-4 Messoghion Ave, Athens, 115 27 Greece, Tel: + 30 210 77 99 622, Fax: + 30 210 77 97 670, Email: <a href="mailto:marketing@haicorp.com">marketing@haicorp.com</a> (Wing Components)
<b>Honeywell International Inc (UK)</b>	<a href="http://www.honeywell.com/sites/uk/">http://www.honeywell.com/sites/uk/</a> , Honeywell House, Arlington Business Park, Bracknell, RG12 1EB Berkshire, United Kingdom, Tel: + 44 03144 656000, Fax: + 44 01344 656240 (Gyroscope Platform)
<b>Intertechnique</b>	<a href="http://www.intertechnique.fr">http://www.intertechnique.fr</a> , 61 rue Pierre-Curie, BP 1, Plaisir Cedex, 78373 France, Tel: + 33 1 30 54 82 00, Fax: + 33 1 30 55 71 61, Email: <a href="mailto:dc@intertechnique.zodiac.com">dc@intertechnique.zodiac.com</a> (Oxygen System)
<b>Intertechnique</b>	<a href="http://www.intertechnique.fr">http://www.intertechnique.fr</a> , 61 rue Pierre-Curie, BP 1, Plaisir Cedex, 78373 France, Tel: + 33 1 30 54 82 00, Fax: + 33 1 30 55 71 61, Email: <a href="mailto:dc@intertechnique.zodiac.com">dc@intertechnique.zodiac.com</a> (Fuel Indicator)
<b>Labinal</b>	<a href="http://www.labinal.com">http://www.labinal.com</a> , 9, avenue Franklin, BP 218, Saint Quentin Yvelines, 78051 France, Tel: + 33 1 30 85 43 00, Fax: + 33 1 30 85 43 73, Email: <a href="mailto:communication@labinal.com">communication@labinal.com</a> (Wiring & Cable Assembly)
<b>Northrop Grumman Navigation Systems Division</b>	<a href="http://www.nsd.es.northropgrumman.com">http://www.nsd.es.northropgrumman.com</a> , 21240 Burbank Blvd, M/S W8, Woodland Hills, CA 91367-6675 United States, Tel: + 1 (818) 715-2470, Fax: + 1 (818) 715-3368 (LN-35 Inertial Platform)
<b>Omera-Segid</b>	55 Rue M Gunsbourg, Ivry Sur Seine, 94204 France, Tel: + 33 145 21 5050, Fax: + 33 145 21 5010 (AA8-360 Display Recorder)
<b>SELEX Sensors and Airborne Systems</b>	<a href="http://www.selex-sas.com">http://www.selex-sas.com</a> , Airport Works, Rochester, Kent, ME1 2XX United Kingdom, Tel: + 44 1634844400, Fax: + 44 1634827332 (Head-Up Display (HUD))
<b>SELEX Sensors and Airborne Systems</b>	<a href="http://www.selex-sas.com">http://www.selex-sas.com</a> , Airport Works, Rochester, Kent, ME1 2XX United Kingdom, Tel: + 44 1634844400, Fax: + 44 1634827332 (Type 784 HUD)
<b>Sagem Défense Sécurité SA</b>	<a href="http://www.sagem-ds.com">http://www.sagem-ds.com</a> , Le Ponant de Paris, 27, rue Leblanc, Paris, 75512 France, Tel: + 33 1 40 70 63 63, Fax: + 33 1 40 70 66 40 (Inertial Navigation System (INS))
<b>Snecma</b>	<a href="http://www.snecma.com">http://www.snecma.com</a> , 10, allée du Brévent, CE1420 Courcouronnes, Evry, 91019 France, Tel: + 33 1 69 87 09 00, Fax: + 33 1 69 87 09 02 (M53 Turbofan)
<b>Technofan</b>	<a href="http://www.technofan.com">http://www.technofan.com</a> , 10, place Marcel Dassault, ZAC du Grand-Noble - BP 30053, Blagnac, 31702 France, Tel: + 33 61 30 92 00, Fax: + 33 61 30 02 04 (Ventilation System)

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## Technical Data

## (Mirage 2000 C/N)

**Design Features.** Mirage 2000 resembles earlier Mirage Deltas, but features a raised cockpit, a taller vertical stabilizer, and a larger nose to house the Thales X-band radar. Delta wing incorporates automatic

cambering leading-edge flaps and full-span elevons on trailing edges. Total wing area about 15 percent greater than Mirage III/5 series. Entire control system is fly-by-wire.

## Dimensions

MetricU.S.

Dassault Mirage 2000

	<u>Metric</u>	<u>U.S.</u>
Length overall	14.36/14.55 m	47.116/47.74 ft
Height	5.20/5.15 m	17.061/16.89 ft
Wingspan	9.13 m	29.97 ft
Wing area	41 sq m	441.16 sq ft
<b>Weight</b>		
Empty	7,500/7,600 kg	16,535/16,755 lb
TOW, clean	10,860/10,960 kg	23,942/24,163 lb
Max external stores	6,300 kg	13,889 lb
Max TOW	17,000 kg	37,478 lb
Max fuel load	6,865/6,770 kg	15,135/14,925 lb
<b>Performance</b>		
Max level speed	Mach 2.3	
Max continuous	Mach 2.2	
Service ceiling	18,000 m	59,058 ft
Range, 4x 250-kg bombs	1,480 km+	800+ nm
Range, 2x 1,700-liter tanks	1,850 km+	1,000+ nm
<b>Propulsion</b>		
Mirage 2000 (initial aircraft)	(1)	Snecma M53-5 augmented turbofan rated 88.25 kN (19,840 lbst).
Mirage 2000 (current)	(1)	Snecma M53-P2 augmented turbofan rated 95.10 kN (21,385 lbst).

**Armament**

Nine hardpoints can carry 7,600 kilograms of stores, including two Super 530 air-to-air missiles, two Matra 550 Magic missiles, underwing/fuselage fuel tanks, 250-kilogram bombs, 1,000-kilogram bombs, 400-kilogram modular bombs, Durandal bombs, 18 BAP 100 penetration bombs, Belouga cluster bombs, F2 practice bomb launcher, F4 (18) 68mm rocket launcher, two AS.30 L laser-guided missiles, two anti-radar missiles, one grenade dispenser pod, one twin-gun pod, one recce pod, two ECM pods, and a refueling pod. Two internal DEFA 554 30mm guns with 250 rounds.

**Crew**

Fighter model seats one; Mirage 2000N and Mirage 2000B trainer seat two in tandem.

## Variants/Upgrades

**Mirage 2000C.** Single-seat interceptor/air superiority fighter flew in November 1982; deliveries began in 1983. France acquired 124 units.

**Mirage 2000B.** Two-seat trainer, flew in 1983. Thirty acquired by French Air Force.

**Mirage 2000DA.** French designation for B and C aircraft.

**Mirage 2000N.** Two-seat, low-altitude, penetration version armed with medium-range ASMP air-to-surface nuclear missiles. Flew in 1983, deliveries began in 1987. Seventy-five acquired by France.

**Mirage 2000E.** Multirole export version ordered by Greece, Jordan, Abu Dhabi, and Egypt.

**Mirage 2000D.** Two-seat conventional version of the N; France acquired 86.

**Mirage 2000S.** Tactical export version of 2000D for conventional weapons carriage. Features an ESD Antilope radar, two INS systems, laser-guided bombs, AS.30 missiles, BAP 100 and Durandal runway cratering bombs, and Exocet and anti-radiation missiles.

**Mirage 2000-5.** New air combat derivative ordered by China. Includes Thales RDY advanced radar, four to six MICA missiles with simultaneous target tracking and attack capability. French Air Force upgrading some Mirage 2000C and DA (I)s to the Dash 5 configuration.

**Mirage 2000-9.** Similar to -5 model, above, but with provisions for GEC-Marconi Hakim air-to-surface

## Dassault Mirage 2000

precision-guided munitions and Matra BAe Dynamics Mica RF radar-guided air-to-air missiles. Also features Elettronica radar-warning receivers. Ordered by the United Arab Emirates (UAE).

**Mirage 2000AT.** Unveiled in 2001, this advanced trainer will instruct students in operation of state-of-the-art weapons systems in complex tactical environments.

**Mirage 2000BR.** Offered for Brazil's FX requirement, a version of the 2000-5.

## Program Review

**Background.** In 1975, France chose the Dassault Mirage 2000 as its next-generation, interceptor/air superiority fighter. First flew in 1978. A two-seat trainer version, the 2000B, made its debut in October 1980.

**Export Market.** The aircraft has been ordered by the Egypt, Greece, India, Peru, Qatar, and Taiwan, and the UAE.

**Brazilian Participation.** A Dassault-led French consortium bought into Brazil's Embraer in 1999, and Dassault proposed a co-production scheme for the Mirage 2000-5.

The Brazilian fighter competition has been an off-again/on-again affair that is not expected to be revived until 2008 or 2009. In the interim, Brazil purchased 12 ex-French Air Force Mirage 200C aircraft in July 2005. Deliveries of these aircraft began in September 2006.

**Recent Developments.** Because of a lack of new orders, Dassault officials indicated early in 2006 that the production line for the aircraft would shut down as the company completed production on the remaining four Mirage 2000 fighters ordered by the Greek Air Force.

## Significant News

**Dassault Delivers Last Mirage 2000-5** – Dassault Aviation has delivered the last of 15 Mirage 2000-5 Mk 2 combat aircraft to the Hellenic Air Force. In late 2000, the Hellenic Air Force had ordered a series of 15 new Mirage 2000-5 Mk 2 aircraft and the upgrade of 10 existing Mirage 2000 aircraft. These aircraft were also the last Mirage fighters that Dassault would build. The company produced a total of 601 Mirage 2000 over the years, and the type is currently operated by nine air forces. (Dassault Aviation, 11/07)

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## Funding

**French Air Force Program Plan.** The French Air Force's original inventory plans called for 23 Mirage 2000Bs, 169 Mirage 2000Cs, and 180 2000Ns. Also included were 105 2000NPs not equipped with the ASMP nuclear attack missile. The nuclear portion of the Mirage 2000N was reduced in 1989 by (then) Minister of Defense Jean-Pierre Chevenement to 45 units, but was subsequently increased in 1991 to 75 units. France received the last of 315 Mirage 2000s in 2001.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Dec	1975	Mirage 2000 chosen as next-generation French fighter
Mar	1978	Prototype first flight
	1979	Initial production order
Oct	1980	Prototype 2000B two-seat trainer flown
Mar	1982	Development of two new 2000N prototypes authorized
Nov	1982	Production aircraft first flight
Late	1983	Initial production deliveries
	1985	Initial exports
	1985	Interceptor variant becomes available

Dassault Mirage 2000

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Feb	1987	Initial 2000N deliveries
Apr	1988	Jordan orders Mirage 2000E
	1988	Operational capability of 2000N
	1988	France announces development of 2000NP variant
Jan	1993	France approves 60-unit Mirage 2000-5 sale to Taiwan
Late	1994	Qatar purchases 12 Mirage 2000-5s
Dec	1997	Follow-on UAE order
May	1999	Follow-on Greek order
	2007	Production ends

## Worldwide Distribution/Inventories

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(As of December 1, 2007)

The Mirage 2000 is in service with the air arms of the following nations:

<b>Egypt</b>	17	<b>Peru</b>	12
<b>France</b>	261	<b>Qatar</b>	12
<b>Greece</b>	46	<b>Taiwan</b>	56
<b>India</b>	49	<b>UAE</b>	61

## Forecast Rationale

Dassault has delivered the last Mirage 2000 it will make after filling an existing order for 15 aircraft from the Greek Air Force.

Until 2006, Dassault's venerable delta-winged design had been a serious candidate for India's Medium-Range Multirole Combat Aircraft (MRMCA) program. Local media indicated that the Indian Air Force favored the Mirage 2000 because it was already familiar with the type and because buying more Mirages would allow it to reduce the number of different types in its inventory, simplifying logistics. But early in 2006, Dassault decided that the cost of keeping the soon-to-be-dormant production line open as it waited for the Indian

government to select an aircraft was too high and that it wanted to focus its marketing efforts on the Rafale.

The IAF remains enthusiastic about adding to its inventory of Mirage fighters, but not in numbers that would justify reopening the production line. An Indian requirement for 20 additional Mirage fighters (enough to equip a fourth squadron) will likely be filled over time by acquiring the aircraft on the second-hand market. India has spent the past few years negotiating to acquire 12 ex-Qatari Air Force Mirage 2000-5s, and a deal to acquire those aircraft may yet be signed. The chance of an Indian order leading Dassault to reopen the Mirage 2000 line appears highly remote.

## Ten-Year Outlook

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No production forecast.

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