

# The **RAFALE**

## **RAFALE SPECIFICATIONS**

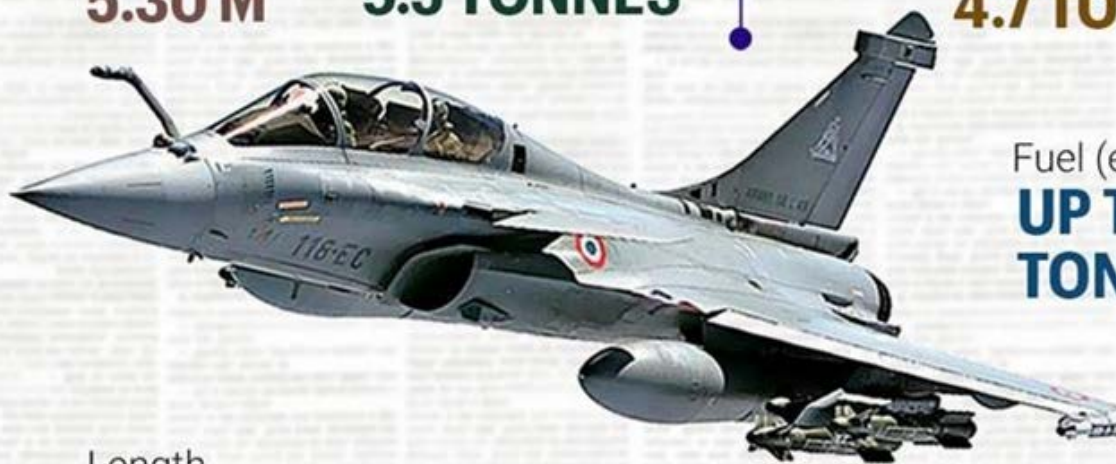
Max. take-off weight  
**24.5 TONNES**

Height  
**5.30 M**

External load  
**9.5 TONNES**

Wing span  
**10.90 M**

Fuel (internal)  
**4.7 TONNES**



Fuel (external)  
**UP TO 6.7 TONNES**

Length  
**15.30 M**

Ferry Range  
**3,700 KM**

Landing ground run  
**450 M (1,500 FT)**

Service ceiling  
**50,000 FT**

Overall empty weight  
**10 TONNES**

Top Speed  
**1.8 MACH AT HIGH ALTITUDE**

## What is RAFALE

The Rafale is a twin-jet fighter aircraft able to operate from both an aircraft carrier and a shore base. The fully versatile Rafale is able to carry out all combat aviation missions: air superiority and air defense, close air support, in-depth strikes, reconnaissance, anti-ship strikes and nuclear deterrence. The Rafale entered service with the French Navy in 2004 and with the French Air Force in 2006. With more than 30,000 flight hours in operations, it has proven its worth in combat in Afghanistan, Libya, Mali, Iraq and Syria. The Rafale was ordered by Egypt, Qatar and India.

## RAFALE Deal

In September **2016**, India and France signed a **€7.87** billion Intergovernmental Agreement (IGA) for **36 Rafale** multi-role fighter jets in fly-away condition. India chose Dassault over its traditional partner Russia's MiG. The deal has a **50%** offset clause to be executed by Dassault Aviation and its partners in partnership with Indian companies. The basic cost of the aircraft is about ₹ **680 crore**. This deal is India's biggest-ever procurement. Besides the missile systems, the Rafale jets will come with various India-specific modifications, including Israeli helmet-mounted displays, radar warning receivers, low band jammers, **10-hour** flight data recording, infra-red search and tracking systems among others. On June **29, 5** Rafale arrived in India. All **36** aircraft will be delivered on schedule by end **2021**.

### Basic Specifications of Rafale

- Wing span: 10.90 m
- Length: 15.30 m
- Height: 5.30 m
- Overall empty weight: 10 tonnes
- External load: 9.5 tonnes
- Max. take-off weight: 24.5 tonnes
- Fuel (internal): 4.7 tonnes
- Fuel (external): up to 6.7 tonnes
- Ferry Range: 3,700 km
- Top Speed: 1.8 Mach at high altitude
- Landing ground run: 450 m (1,500 ft)
- Service ceiling: 50,000 ft

## India Specific enhancements

- Helmet mounted sights and targeting system to give the pilots lightning quick ability to shoot off weapons.
- Ability to taken off from high altitude airbases like Leh on a 'cold start' - for quick reaction deployment.
- A radar warning receiver to identify hostile tracking systems.
- A towed decoy system to thwart incoming missile attacks.
- French industrial support for fighter for 50 years.

## **How the Rafale fighter aircraft will add to IAF power**

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- The aircraft is capable of carrying a range of potent weapons. European missile maker MBDA's Meteor beyond visual range air-to-air missile and Scalp cruise missile will be the mainstay of the weapons package of the Rafale jets. Meteor is the next generation of BVR air-to-air missile (BVRAAM) designed to revolutionise air-to-air combat. The weapon has been developed by MBDA to combat common threats facing the UK, Germany, Italy, France, Spain and Sweden.
- The Meteor is powered by a unique rocket-ramjet motor that gives it far more engine power for much longer than any other missile. Besides the missile systems, the Rafale jets will come with various India-specific modifications, including Israeli helmet-mounted displays, radar warning receivers, low-band jammers, 10-hour flight data recording, infra-red search and tracking systems among others.
- Another significant factor with the Rafales is that as per contract, at least 75% of the Rafale fleet has to be operationally available, which would make it the most available fighter in the IAF fleet.
- According to its manufacturer Dassault Aviation, Rafale is an omni-role fighter capable of the entire spectrum of roles — air superiority and air defence, close air support, in-depth strikes, reconnaissance, anti-ship strikes and nuclear deterrence. With its advanced AESA (Active Electronically Scanned Array) radar, electronic warfare suite and network-centric capabilities in addition to its armaments, Rafale is now the most advanced fighter in the IAF arsenal, overtaking the SU-30MKI, which is due for major upgrades.
- Rafale is also the first imported fighter to join service in over two decades since the SU-30s in the late 1990s. Rafale has 14 hard points for weapons and can carry a total external load of over 9 tonnes. In addition to the Meteor, it is armed with SCALP long-range stand-off attack air-to-ground missiles and MICA multi-mission air-to-air missiles. The latest addition, HAMMER (Highly Agile Modular Munition Extended Range) medium range air-to-ground missiles, is being procured through the emergency route.
- After the receipt of the ruffle, India has come to a stronger position on its border (between China and Pakistan) than before, because the RAFALeruffle has been modified according to Indian geographical situations.

## **RAFALE vs CHINA'S J20 and PAKISTAN'S F16**

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- While China's J20 Chengdu jets are called fifth generation combat jets, compared to 4.5 generation Rafale, the J20 have no actual combat experience. Whereas the Rafale is combat proven, having been used by the French Air Force for its missions in Afghanistan, Libya and Mali. It has also been used for missions in Central African Republic, Iraq and Syria. Rafale can also carry more fuel and weapons than the J20.
- Each RAFALE has 14 storage stations for weapons. The jets come with one of the most advanced Meteor air-to-air missiles. The 190-kg missile has a Beyond Visual Range (BVR) of over 100 km, traveling at a top speed of Mach 4. The F16 jets, used by Pakistan, carry the AMRAAM missile, which has a BVR of 75 km. Rafale can also outperform F16 in dog-fights.
- The Rafale jets also come with SCALP, the air-to-ground cruise missile with a range over

300 km. It is a long-range deep strike missile.

- The MICA air-to-air missile on Rafale is for both, close-quarter dogfights, and for BVR. At the last-minute, India has also asked for HAMMER (Highly Agile and Manoeuvrable Munition Extended Range), which is an air-to-ground precision guided missile produced by French conglomerate Safran, and can be used against bunker-type hardened targets within the range of 70 km.

## Timeline of RAFALE

- **December 30, 2002** : Defence Procurement Procedures (DPP) adopted to streamline procurement.
- **August 28, 2007** : Ministry of Defence issues Request for Proposal for procurement of 126 MMRCA (medium multi-role combat aircraft) fighters.
- **September 4, 2008** : Mukesh Ambani-led Reliance group incorporates Reliance Aerospace Technologies Ltd (RATL).
- **May 2011** : Air Force shortlists Rafale and Eurofighter jets.
- **January 30, 2012** : Dassault Aviation's Rafale aircraft comes up with the lowest bid.
- **March 13, 2014** : Work Share agreement signed between Hindustan Aeronautics Limited (HAL) and Dassault Aviation under which they were responsible for 70 per cent and 30 per cent of the work, respectively, for 108 aircraft.
- **August 8, 2014** : Then defence minister Arun Jaitley tells Parliament that 18 direct 'fly-away' aircraft expected to be delivered in 3-4 years from signing of the contract. Remaining 108 aircraft to be delivered in the next seven years.
- **April 8, 2015** : The then foreign secretary says detailed discussions underway between Dassault, MoD and HAL.
- **April 10, 2015** : New deal for acquisition of 36 direct 'fly-away' aircraft from France announced.
- **January 26, 2016** : India and France sign MoU for 36 Rafale aircraft.
- **September 23, 2016** : Inter-governmental agreement signed.
- **November 18, 2016** : Government states in Parliament that the cost of each Rafale aircraft to be approximately Rs 670 crore and that all aircraft will be delivered by April 2022.
- **Also read** : Rafale deal : SC dismisses Centre's objections, to review its verdict
- **December 31, 2016** : Dassault Aviation's Annual Report reveals the actual price paid for the 36 aircrafts at about Rs 60,000 crore, more than double the government's stated price in Parliament.
- **March 13, 2018** : Public Interest Litigation (PIL) in SC seeks independent probe into Centre's decision to procure 36 Rafale fighter jets from France and disclosure of the cost involved in the deal before Parliament.
- **September 5, 2018** : SC agrees to hear PIL seeking stay on Rafale fighter jet deal.
- **September 18, 2018** : SC adjourns hearing on PIL seeking stay on Rafale fighter jet deal to October 10.
- **October 8, 2018** : SC agrees to hear on October 10 fresh PIL seeking direction to Centre

to file in “sealed cover” the details of the agreement for buying 36 Rafale fighter Jets.

- **October 10, 2018** : SC asks Centre to provide details of decision making process in the Rafale fighter jet deal in a sealed cover.
- **October 24, 2018** : Former Union ministers Yashwant Sinha and Arun Shourie and activist-lawyer Prashant Bhushan move SC, seeking registration of FIR into Rafale fighter jet deal.
- **October 31, 2018** : SC asks Centre to place before it in a sealed cover within 10 days the pricing details of 36 Rafale fighter jets.
- **November 12, 2018** : Centre places price details of 36 Rafale fighter jets in a sealed cover before SC. It also gives details of steps that led to finalisation of the Rafale deal.
- **November 14, 2018** : SC reserves order on pleas seeking court-monitored probe in Rafale deal.
- **December 14, 2018** : SC says there is no occasion to doubt the decision-making process of the Modi government and dismisses all the petitions seeking direction to the CBI to register an FIR for alleged irregularities in the jet deal.
- **December 15, 2018** : Government moves Supreme Court seeking correction in para which makes reference to CAG report and PAC.
- **January 2, 2019** : Former Union ministers Yashwant Sinha and Arun Shourie, advocate Prashant Bhushan moves SC seeking review of Rafale verdict.
- **Read** : Rafale: ‘Don’t worry Modi ji’, probe will take place now, says Congress
- **January 14, 2019** : AAP MP Sanjay Singh moves SC seeking review of Rafale verdict.
- **February 21, 2019** : Bhushan seeks hearing on plea seeking perjury prosecution of some officials for misleading court in Rafale case.
- **February 26, 2019** : SC decides to hear pleas seeking review of Rafale verdict in open court.
- **March 6, 2019** : Documents related to Rafale deal stolen from Defence Ministry, Centre tells SC, threatens The Hindu newspaper with the Official Secrets Act for publishing articles based on them.
- **March 8, 2019** : Attorney General clarifies that Rafale documents not stolen, petitioners used photocopies.
- **March 13, 2019** : Review plea based on leaked secret documents jeopardises national security, Centre tells SC.
- **March 14, 2019** : Will first decide preliminary objection raised by Centre, says SC, reserves verdict.
- **April 10, 2019** : SC allows use of leaked documents, dismisses Centre’s objections claiming privilege.
- **June 29, 2020** : 5 Rafale arrived in India.