

Airbus Group



HISTORY

Airbus is a consortium founded to compete with the American aircraft manufacturers. Its origins date to 1967 from a government initiative between France, Germany and the UK. Firms from each country delivered individual items ready to fly. The first aircraft available under the Airbus brand was the A300. It wasn't very successful at that time but the order numbers were slowly picking up with its modernized versions.

- Airbus Industrie was formally established as an Economic Interest Group (*Groupement d'Intérêt Économique* or GIE) on 18 December 1970.
- Its initial shareholders were the French company [Aérospatiale](#) and the West German company Deutsche Airbus, each owning a 50% share.
- The name "Airbus" was taken from a term used by the airline industry in the 1960s to refer to a commercial aircraft of a certain size and range.
- Aérospatiale and Deutsche Airbus each took a 36.5% share of production work, Hawker Siddeley 20% and the Dutch company [Fokker-VFW](#) 7%.

- Each company would deliver its sections as fully equipped, ready-to-fly items. In October 1971 the Spanish company [CASA](#) acquired a 4.2% share of Airbus Industrie, with Aérospatiale and Deutsche Airbus reducing their stakes to 47.9%.
- In January 1979 British Aerospace, which had absorbed Hawker Siddeley in 1977, acquired a 20% share of Airbus Industrie. The majority shareholders reduced their shares to 37.9%, while CASA retained its 4.2%.

A global pioneer in aeronautics, space and defence-related services, creating cutting-edge technology.

- 136,574 employees
- Workforce went from 89,000 in 2000, to more than 136,000 today
- The Airbus Group operates in more than 170 locations worldwide. Most of the Company's order book and growing industrial footprint now lies beyond its European borders.
- Such examples can be seen in aircraft final assembly lines in [Tianjin](#), China, and [Mobile](#), Alabama (US). Also helicopters in Brazil, research centres in [Singapore](#), [India](#), The [US](#), [China](#) and Russia, and Maintenance, Repair and Overhaul (MRO) hubs on five continents.

Airbus Group's strong European roots

- Airbus Group has 170 locations around the world.
- The largest aerospace and defence company in Europe.
- A vital and growing contribution to the economies of home countries, [France](#), [Germany](#), [Spain](#) and the [UK](#), and around 35,500 of their suppliers (or 65% of our total spend) are in their home markets.
- Also helps to preserve European competitiveness on the world stage: since their foundation in 2000, they have created 15,000 new high-tech jobs in Europe alone.

Contributing to France's competitiveness

- [Airbus Group](#) exports over €20 billion of aeronautical and space products from France each year, placing €12 billion of orders with 9,300 French industrial partners annually. The talent and skills of the Group's 54,500 employees in France form the bedrock of its global competitiveness.
- The Company works with schools and universities across France to promote interest in aeronautics [among future generations](#). In recent years, Airbus Group has consistently ranked amongst France's most attractive employers and its commitment to equality and diversity is widely recognised.

Reinforcing aerospace leadership

- [Airbus Group](#) is already a leader in each domain in which it operates: it has achieved parity with Boeing in the commercial aircraft segment, is the No. 1 helicopter company in the world, the European leader in space business and second in Europe in the defence sector. Moreover, since the Group's foundation in 2000, it has increased its revenues by 145% and its annual order intake by 346%.

A320 FAMILY THE MARKET LEADER



- The A320 single-aisle jetliner family (composed of the A318, A319, A320 and A321) is the world's best-selling single-aisle aircraft family
- To ensure this true market leader keeps its competitive edge, Airbus continues to invest in improvements across the product line, including the A320neo (new engine option) Family, enhancements to the jetliner's aerodynamics such as Sharklets wingtip devices, upgrades to the widest passenger cabin in its class...
- Airbus had booked over 4,800 firm orders for new engine option aircraft through November 2016, comprising an important percentage of the more than 12,800 overall orders logged by Airbus for the entire A320 Family.

A330 FAMILY

MODERN, VERSATILE AND EFFICIENT WIDEBODY AIRCRAFT



- Airbus has committed to continuously improving the programme since the A330's service entry. The company spends approximately 150 million euros each year on improvements for the A330 jetliner family.
- The newest evolution to the A330 Family is Airbus' A330neo (new engine option), which builds on the A330's proven economics, versatility and reliability while reducing fuel consumption by a further 14 per cent per seat. The NEO's two versions – the A330-800 and A330-900 – share the same fuselage lengths of today's A330-200 and A330-300 current engine option jetliners, respectively. These aircraft incorporate latest-generation Rolls-Royce Trent 7000 engines.

- The A330neo cabin is also launching the company's Airspace by Airbus cabin brand. This represents the best of Airbus' cabin innovation and design, and will be applied progressively across all Airbus aircraft. Airbus commenced final assembly for the first A330neo, an A330-900, in 2016 and first deliveries are planned for the fourth quarter of 2017. The A330neo will expand operators' market opportunities with a range capability increase of up to 400 nautical miles.

A340 FAMILY

- The A340 has earned its reputation as a true globe-trotter – flying some of the world’s longest and most demanding routes while providing superior operating economics – even in challenging “hot and high” conditions – and excellent passenger comfort.
- The four-engine A340 has greater range at lower cost than other long-range widebody commercial jetliners and the aircraft’s extended reach and spacious interior also tailors it for VIP and government use with highly discerning customers.
- There are four variants in Airbus’ A340 Family: the A340-200, A340-300, A340-500 and A340-600. With the jetliners’ different fuselage lengths, this product line accommodates from around 250 to up to 475, providing extended operating ranges of up to 9,000 nautical miles.

A350 XWB

- The A350 XWB is Airbus' all-new family of widebody aircraft that is shaping the future of medium- to long-haul airline operations – overcoming the challenges of volatile fuel prices, matching rising passenger expectations and addressing increasing environmental concerns.
- This new-generation jetliner – which entered commercial service in January 2015 – offers seating capacities between 250-440 with its three passenger versions: A350-800, A350-900 and A350-1000.
- The A350 XWB is setting a new standard of efficiency in its class, with 25 per cent lower fuel consumption compared to its current aluminium long-range competitors. It also provides superior passenger comfort, with more personal space and 18-inch wide seats (45cm) as standard in economy. With the Ultra-Long Range configuration for the A350-900, the A350 XWB demonstrates its versatility by offering the capability to perform flights of up to 19 hours.

A380

- INCREASING PROFITABILITY
- Designed for air transport needs in the 21st century, its unique size allows airlines to maximize their revenue potential through an optimized, segmented cabin. The A380 cabin is the quietest and most spacious in the sky for passengers – offering layouts ranging from comfortable seats in economy up to a private three-room suite. This results in higher market shares, higher load factors and higher revenues – allowing airlines to increase their contribution to profit by up to 75 per cent per flight.

THE MAKING OF AN AIRCRAFT



- DESIGN OFFICES AND ENGINEERING CENTRES
- PRODUCTION
- TRANSPORT OF MAJOR AIRCRAFT SECTIONS
- FINAL ASSEMBLY AND TEST
- TEST PROGRAMME AND CERTIFICATION
- DELIVERING TO THE CUSTOMER

DESIGN OFFICES AND ENGINEERING CENTRES

- A WORLDWIDE NETWORK
- In line with its philosophy of global cooperation, Airbus relies on a network of regional facilities for design and engineering activities across the company's full family of modern aircraft. This high-tech work is divided across design offices and engineering centres located throughout Europe and North America, along with additional sites in India and China.

PRODUCTION

- Airbus' Hamburg site manages structural assembly and outfitting of fuselage sections, as well as final assembly for A320 Family aircraft. This plant also is home to Airbus' A380 major component assembly hall
- Toulouse's responsibilities include engineering (general design, systems and integration tests, definition of the structure and more), structure testing and a materials processes development centre, systems organisation, flight tests, the Beluga hangar and one of Airbus' three delivery centres. It also hosts final assembly lines for the A320, A350 XWB and A330 – including the cabin furnishing and painting – as well as the A380's final assembly and preparation for flight.

- The Saint-Nazaire plant specialises in structural assembly, equipping and testing of front and central fuselage sections for the entire Airbus family. It receives sub-assemblies to be fitted for the forward fuselage for the A320 Family, the forward and central fuselage for the A330 and A380 families, and the nose fuselage for the A350 XWB. Saint-Nazaire is also in charge of equipping and testing these sections before delivering them to various final assembly lines.

- Nantes specialises in the manufacturing and assembly of the centre wing boxes for all Airbus aircraft, and is a leader in the manufacture of Carbon Fibre Reinforced Plastic structural parts – such as the A350 XWB keel beam. Nantes also is responsible for manufacturing the radomes for the entire Airbus family, the ailerons for the A330 and A380 families and air inlets for the A350 XWB, A380 families and A320neo.

- Located in North Wales, Airbus' Broughton site assembles wings for the entire family of aircraft commercial aircraft, producing over 1,000 wings per year
- Filton is the other UK-based site for Airbus, with its engineering and research & technology groups responsible for wing design, landing gear and fuel systems design and testing; and manufacturing of components.

- Getafe, located in central Spain, specialises in aeronautical component engineering, design, production and assembly. The plant is the delivery centre for final assembly lines in Toulouse and Hamburg for all the programs with the exception of the A380 – a role it shares with the Puerto Real plant in Cádiz. Getafe uses metallic material and advanced composite materials to manufacture fuselage for all Airbus aircraft and specialises in the final assembly, systems testing and testing of all horizontal tail planes, for all Airbus aircraft; rear fuselage and tail cone of the A380 and rear fuselage of the A350 XWB.

TRANSPORT OF MAJOR AIRCRAFT SECTIONS

- Airbus has developed its own transportation system to airlift the large, pre-assembled sections of its jetliners from their production locations to final assembly lines in Toulouse and Hamburg. This service is performed by a fleet of five A300-600ST Super Transporters.
- These modified A300-600s, nicknamed the “Beluga,” have a bulbous main-deck cargo cabin which enables the loading of complete fuselage sections and wings. Operated by Airbus Transport International, the Super Transporter is able to carry a 47 metric tonne (103,616 lb.) payload over a range of 900 nautical miles (1,667 km.).
- To support planned production rate increases, Airbus is expanding its existing A300-600ST fleet with the development and production of five new Beluga aircraft – which will be derived from the company’s versatile A330 widebody product line, with a mid-2019 service entry.

MULTIMODE TRANSPORT FOR A380

- The A380's size means its fuselage and wing sections are shipped via a surface transportation network that includes specially-commissioned roll-on roll-off ships to carry these sections from production sites in France, Germany, Spain and the United Kingdom to the French city of Bordeaux. From there, sections are transported by barge along the Garonne River to the Toulouse final assembly line.
- As for other Airbus aircraft programmes, production of the A380 takes place in different sites across Europe. Each site produces completely equipped sections, which are transported to the final assembly line. Most A380 sections are transported to Toulouse by sea, river and road.

SHIPPING AIRCRAFT SECTIONS

- A specially-designed Airbus river barge carries an A380 fuselage and aft section through Bordeaux, France, on their way to the final assembly line in Toulouse.
- All large A380 sections are transported by truck from inland production sites to the nearest river or sea port. Wings, for example, travel by barge along the River Dee from Broughton in North Wales to the Dee estuary, where they are loaded onto a large capacity roll-on roll-off vessel. The craft is used to move aircraft sections by sea to the French port of Pauillac, near Bordeaux.

FINAL ASSEMBLY AND TESTS

- Toulouse also became home to Airbus' initial assembly line for the A320 Family, which subsequently was supplemented by capacity at Hamburg, Germany to meet high output demand for Airbus' best-selling aircraft.
- Another final assembly line opened in 2008 at Tianjin, China – the first such facility for Airbus to be located outside of Europe, providing a production site within one of the world's key future air travel markets.

TEST PROGRAMME AND CERTIFICATION

- Before reaching series production, Airbus aircraft programmes undergo a complex, rigorous flight test and certification campaign. Once approved and certified, the aircraft is cleared for take-off for the entirety of its lifetime.
- For instance: the A380 was certified by the two major international governing bodies – the European Aviation Safety Agency (EASA) and the U.S. Federal Aviation Administration (FAA) – in December 2006, following a programme that began more than five years earlier and ultimately comprised more than 2,600 flight hours with a fleet of five test aircraft.

DELIVERING TO THE CUSTOMER

AIRCRAFT DELIVERY

- Airbus has modern delivery centres at its final assembly facilities in Toulouse, France; Hamburg, Germany; Tianjin, China; and Mobile, Alabama in the U.S.
- Before taking delivery of an aircraft and signing the transfer of the title, the customer airline carries out a complete and detailed check. It is represented by a team of experts whose assignment is to check the conformity of the aircraft with the contractual specification. They are assisted in this by the Airbus Delivery team.
- The delivery phase is spread over four or five days on average, dependent upon the aircraft programme.

WORKING WITH CUSTOMERS

- Each representative appointed by the customer airline has responsibility for a specific number of tasks. A typical team consists of around seven people (from engineering, quality, maintenance, flight operation, etc.) placed under the authority of a delivery team leader who centralises all the issues.
- Airbus also offers the customer airline a series of presentations about its aircraft throughout the production process, from major component assembly to painting and cabin furnishing, so that it can check that the terms of the contract have been met.

AIRBUS FRANCE

- Home to the Group's headquarters and a host of major production and research locations
- The Concorde laid the foundations of the Anglo-French industrial cooperation. Its legacy can be seen today at the future Aeroscopia Museum in Toulouse.
- France hosts major [Airbus](#), [Airbus Helicopters](#) and [Airbus Defence and Space](#) production facilities.

- Airbus Group's French workforce has increased by 31% since the creation of the Group in 2000, representing 37% of the Company's total workforce today.
- When it comes to innovation, Airbus Group is the 8th-largest patent holder in France, registering over 370 trademarks each year for R&D spends of €1.3 billion. The Group operates one of its [Airbus Group Innovations](#) centres in Suresnes, near [Paris](#), and supports France's network of competitiveness clusters including Aerospace Valley, linking the Midi-Pyrénées and Aquitaine regions.
- The Group's commitment to its small and medium-sized enterprise (SME) suppliers is reflected in its membership of the SME pact, designed to strengthen ties between entrepreneurs and large industrial groups.

Airbus in France: where aircraft are built



Airbus Group's A380 Final Assembly Line
in Toulouse, France.

- The final assembly lines (FAL) for the [A320 Family](#) – including the New Engine Option – A330, A380 and [A350 XWB](#) employ nearly 11,500 people in the [Toulouse](#) area.
- The most recently constructed facility houses the A350 XWB FAL.
- sustainable business and makes extensive use of natural lighting.
- The site generates 55% of its own energy, including power from 22,000 square metres of photovoltaic panels located on the roof.

HEADQUARTERS

- Is close to the Toulouse-Blagnac airport and employs 4,500 people in central functions such as:
- finance, marketing, engineering, customer support programmes and procurement.
- Flight and ground testing of aircraft
- research, design and development and one of the 3 major worldwide Airbus training centres are also based in Toulouse.

AIRBUS SAINT NAZAIRE/NANTES

- Airbus Saint-Nazaire, on the French Atlantic coast, is set on 2 production sites covering 50 hectares, with a 2,300-strong workforce. It specialises in the assembly, equipping and testing of the forward sections of the A320 Family, as well as the forward and centre sections of the A330 Family and the A380.
- About an hour east of Saint-Nazaire, Airbus has approximately 2,000 employees in [Nantes](#), where centre wing boxes are produced. Nantes is also a leader in the manufacture of structural parts in carbon fibre reinforced plastic (CFRP) and produces nacelle air inlets.

Airbus Defence and Space in France:



In France, Airbus Group works on space launch products such as Ariane 5.

- [Airbus Defence and Space](#) is the French Defence Ministry's largest industrial supplier and has a number of key sites around the country. In Toulouse, 2,630 employees are engaged in work on space launch products such as Ariane 5, satellite manufacture and satellite-based digital information gathering and analysis. Flight testing for the A400M military transport and other military aircraft is often shared between Toulouse and flight test facilities in Spain.
- At [Elancourt](#) in the Ile-De-France region, Airbus Defence and Space employs 1,750 people who are mostly committed to work on cyber security, radio-communications, network-centric operations and electronics. In Les Mureaux, close to Paris, and Saint-Médard-en-Jalles, near Bordeaux, a combined work force of over 3,000 employees works on space- and ballistic missile-related products.

Airbus Helicopters in France: expanding in Marignane and Paris-Le Bourget



- [Airbus Helicopters'](#) headquarters are part of the [Marignane](#) site close to Marseilles Provence airport. The site also provides a home to the design office, assembly lines, customer services, training and a composite and mechanical centre. Between them, they employ 8,944 people who work on the full range of Airbus Helicopters products.
- At [La Courneuve](#) near Paris, which employs 740 people, the company's key activities are rotor blade production, development and customer services. In the near future, Airbus Helicopters will modernise production facilities by moving to Dugny, which is also in northern Paris, and a location officially called 'Paris-Le Bourget'.

Adaptation to a more global world

- [Airbus Group's market](#) access needs to evolve with the world economy. Proud of its European heritage, the Company is adapting to a more global world for the design, development and manufacturing of its products and services, as well as attracting and retaining talents.
- Although European 'by birth', Airbus Group is the most culturally diverse aerospace and defence company in the world. Diversity of staff and skills, with employees outside Europe more than doubling in the last five years. The trend for internationalisation is set to continue: Airbus Group estimates that 84% of its future revenues will come from outside the European Union.
- 138000 employees worldwide
- 135 nationalities
- 180 sites across 35 countries

Growing industrial footprint

- Key to the Group's growing international presence is the expansion of its production facilities across the globe. On 14 September, 2015, [Airbus](#) inaugurated its first commercial aircraft [production site](#) in the [US](#), an A320 Family final assembly line in Mobile, Alabama. Deliveries from the site began in 2016.
- Under its 'one roof' policy, the Group is to strengthening its presence in a number of key markets, bringing together local operations under a single company to unite expertise. For example in [India](#), in conjunction with the local government's 'Make in India' campaign, Airbus Group is now helping drive progress in the local aerospace and defence sectors and enhance its role in the global supply chain.

Accelerating the pace of innovation

- Airbus Group is committed to breaking down barriers and forging cross-industry cooperation. It is expanding its global network of technology incubators, academic partnerships and accelerators to speed up time-to-market and capitalise on innovative and transformational technologies and business models.
- The Company recognises the need to be bold and its Airbus Ventures corporate venture capital fund – led by François Auque and [Thomas d'Halluin](#) – and the A³ innovation outpost – led by [Rodin Lyasoff](#) – in Silicon Valley represent a strategic location from which to engage with innovative players worldwide.

AIRBUS GROUP WILL BUILD 900 SATELLITES FOR THE ONEWEB CONSTELLATION



Internet everywhere: OneWeb will enable affordable broadband for rural and underdeveloped locations.

- The space sector is symptomatic of the changing face of the aeronautical industry, with a growing number of non-traditional players transforming the landscape. Airbus Group is at the forefront of this transformation, as highlighted by its leading role in the [OneWeb project](#), which aims to deliver affordable internet access across the globe. Drawing on its large-volume aircraft manufacturing expertise, the Group will design and build more than 900 satellites for the OneWeb constellation.

Innovative power

- Airbus Group is exploiting the potential of new product platforms for innovation, such as with its [A320 Family](#) New Engine Option. At the same time, it will maintain investment in more disruptive technologies – often working with research partners – to develop the breakthroughs that will help form new products. The Group invested €3.5 billion in research and development in 2015.

INNOVATION



INCREMENTAL INNOVATION

New engines

- Latest technology and new architecture
- Enabling by-pass ratios up to 12
- Lowest Specific Fuel Consumption in this category
- Lower CO₂ and emissions
- Lower noise levels



Sharklets

- Improved aerodynamics for lower fuel burn
- Reducing CO₂ emissions
- Improved field performance and lower noise levels

BREAKTHROUGH INNOVATION



Biplane Stabilizer

Contributes to agility with improved performance and exceptional handling.

New Generation Turboshaft Engine

More powerful than previous generation while reducing fuel consumption and CO₂ emissions.

Disruptive innovation: E-Fan and electric propulsion



The E-Fan's first public flight took place in April 2014 during Airbus Group's E-Aircraft Day in Bordeaux, France.

As part of the Group's e-roadmap, Airbus Group Innovations and its partners will produce E-Fan 2.0 two-seat pilot trainers and a four-seat E-Fan 4.0 version.



Value chain

- [Airbus Group](#) actively manages its value chain and ensures it can differentiate its products in the long run, de-risk current and future programmes, especially during ramp-up, and generate services revenues.

The Group's suppliers provide a large proportion of the value in its products, necessitating a robust supply-chain governance framework, backed by processes and tools that foster partnership, risk mitigation and supplier performance development.

VALUE CHAIN



Ariane 6



Technologies such as **3D printing** will change the way we produce and what we do in-house.

Digitalisation to speed up design, manufacturing and after-sale services.

Joining forces with companies to increase competitiveness. E.g Airbus Safran Launchers

New approach to production

- By harnessing the potential of [digital technologies](#) and [3D printing](#), Airbus Group is changing the way it works. Virtual design processes are already allowing for more rapid product optimisation and production, while 3D printing will give unprecedented creative freedom as well as speeding up production. In the aftersales market, spare parts may soon be printed and available before an aircraft even lands.
- In January 2015, Airbus Group and Safran formed [Airbus Safran Launchers](#), a joint venture that will boost competitiveness and ensure the profitability of the European space launcher business.

THE AIRBUS FOUNDATION

Is the Company's vehicle for corporate philanthropy. The Foundation supports the global humanitarian community and inspires and prepares young people for the challenges of tomorrow.

AIRBUS VERSUS BOEING

Reference www.Airbus.com

www.enwikipedia.org

www.whichairline.com