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Eurofighter: the role of the Finmeccanica companies

The Eurofighter Typhoon was designed as the world's most advanced new-generation swing-role combat aircraft and is in operation in ten Air Force bases across Europe, delivering security every day.

The Eurofighter Typhoon will effectively lead to the replacement of up to 11 aircraft types, delivering commonality and a high degree of interoperability. With 620 aircraft ordered for the four nations plus 15 for Austria and 72 for the Kingdom of Saudi Arabia, 559 aircraft are presently under contract. Originally intended to fulfil air superiority missions, the design concept evolved, taking into account new operational scenarios, leading to a full multi-role and swing-role weapon system.

The Eurofighter Typhoon has provided a boost to both technology and employment in the European aerospace industry, guaranteeing for partner countries growth, capacity, a good cost/efficiency ratio and global competitiveness. The programme is divided into three tranches:

1st Tranche: 148 aircrafts in production in 2003-2007
(55 UK, 44 Germany, 29 Italy and 20 Spain);

2nd Tranche: 236 aircrafts in production in 2007-2012
(89 UK, 68 Germany, 46 Italy and 33 Spain);

3rd Tranche: 236 aircrafts in 2012-2017, of which 112 under production contract now.

Contracts and delivery status

The signature of: Tranche 1 Production Contract in 1998; Tranche 2 Production Contract on the 14th of December 2004 and 112 aircraft for Tranche 3 on the 31st of July 2009, confirmed Eurofighter's position of having the largest order book of any next-generation fighter aircraft. Under this aspect, the Eurofighter Typhoon is a real bestseller. Austria's (15 aircraft) and Saudi Arabia's (72 aircraft) export contracts contributed to strengthen this position.

All T1 aircraft have been delivered, first deliveries of Tranche 2 aircraft to the four nations have begun early October 2008. The main difference between Tranche 1 and Tranche 2 aircraft is the new computer suite, with more processing power to enable future developments. Other hardware differences are production- or obsolescence-related.

All Tranche 2 aircraft will go through the Phase 1 Enhancement programme (contract signed 29th March 2007), available in two releases (2010/12), offering improvements in MMI (Man Machine Interface), Engagement (Air-to-air and Air-to-Surface), Survivability, Communication, Interoperability, NEC (Network Enabled Capability), Targeting and providing a further enhancement of the swing-role capability.

Finmeccanica plays a leading role in the global aerospace and defence industry, and participates in some of the sector's biggest international programmes through its group companies and well-established alliances with European and USA partners. A leader in the design and manufacture of helicopters, defence and security electronics, civil and military aircraft, aerostructures, satellites, space infrastructure and defence systems, Finmeccanica is Italy's leading high-tech company. It also boasts significant manufacturing assets and skills in the transport and energy sectors; it is listed on the Milan stock market and operates via a number of group companies and joint ventures. It has over 73,000 employees, with more than 12,600 working in the USA, about 10,100 in the UK and over 3,600 in France. As part of its drive to maintain and build on its technological excellence, Finmeccanica spends 12% of its revenues on Research and Development.

The first Italian T2 aircraft was delivered in November 2008, marking a milestone for the largest industrial collaboration programme in Europe's history with over 100,000 people in the four partner countries currently involved in the programme, including 24,000 in Italy. For the Typhoon, a portfolio of over 400 suppliers, of which over 200 are in Italy, is involved in the production: capacity is now over three aircraft a month.

The contract for first part of Tranche 3, that is related to the production of 112 aircraft, has been signed in July 2009.

In service

The Eurofighter Typhoon has been in service with the four air forces since Spring 2004.

Flight hours air forces end January 2009	61,000
Flight hours test aircraft (industry) 13 th November 2008	6,100
Total	68,100

The Royal Air Force has declared the Eurofighter Typhoon "combat-ready for Multi-Role" on 1st July 2008. Austria has officially started Air Surveillance tasks with the Eurofighter Typhoon. The German and the Spanish Air Forces started NATO Quick Reaction Alert duties, joining Italian Air Force that declared readiness for QRA (Quick Reaction Alert) at the end of 2005.

Export

The aircraft has been already selected by Austria (15 aircraft) and Saudi Arabia (72 aircraft). Many European and non-European countries have formally expressed interest for this aircraft. With these countries information exchange or real trade have already begun. Up till now the following countries have showed interest for the Eurofighter Typhoon: Turkey (40/80 aircrafts), Greece (60 aircrafts), Romania (48 aircrafts), Japan (50 aircrafts), Switzerland (33 aircrafts), Bulgaria (12 aircrafts), India (126 aircrafts). This means an over-350 aircraft's potential business in the amount of more than € 35 billions relating to the aircraft's supply and to the relevant logistic support.

Programme background

In December 1997 the Memorandum of Understanding (MoU) covering Production and Support was signed by the four Defence Ministers. On January 1998 NETMA and Eurofighter GmbH signed Production and Support contracts - called Umbrella contract - for the initial purchase of 620 aircraft split as follows: 232 aircrafts for the UK (37% workshare), 180 aircrafts for Germany (30% workshare), 121 aircrafts for Italy (19,5% workshare), and 87 aircrafts for Spain (13,5% workshare).

The above has been contracted during 1998 when Supplement 2 agreements to the production contract covered the production of the first Tranche of 148 aircrafts (55 UK, 44 Germany, 29 Italy and 20 for Spain). Moreover, by end of 2004, the Tranche 2 production contract was signed for further 236 aircraft (89 for UK, 68 for Germany, 46 for Italy, and 33 for Spain).

Final assembly is now in full swing at each of the four nation sites. Delivery of aircraft has started in February 2003 and all four nations have been operating the aircraft since Spring 2004.

Two consortia are responsible for aircraft development and production: Eurofighter for the airframe, and Eurojet for the engine:

1) Eurofighter GmbH, formed by Alenia Aeronautica (Italy 21%), BAE Systems (UK 33%), EADS-Spain (13%) and EADS-Germany (33%), is responsible for the design, development and final assembly of the aircraft, programme management, and management and co-ordination of sub-contracted work;

2) Eurojet Turbo GmbH, formed by Avio (Italy 21%), ITP (Spain 13%), MTU (Germany 33%) and Rolls-Royce (UK 33%), is responsible for designing and co-ordinating operations for the production of the EJ200 engine used in the aircraft.

Other consortia were also formed to work with Eurofighter to develop and produce subsystems: Euroradar was set up to design and manufacture the aircraft's Captor radar system, led by SELEX Galileo; EuroDASS, designs and produces the defensive aids subsystem (DASS) to protect the aircraft from radar; laser and IR-guided missiles and the EuroFirst consortia for the Pirate passive infrared target search, both led by SELEX Galileo.

Finmeccanica's involvement in the Eurofighter Programme

Alenia Aeronautica's role

Alenia Aeronautica is the Italian leader in the aircraft development and production programme, with a stake of 21%. It is responsible for the construction of the left wing, the design and construction of the rear fuselage with BAE Systems, the design and integration of some on-board systems, including weapons and navigation, as well as the integration of the whole propulsion system. It is also responsible for the final assembly of all aircraft for the Italian air force.

For the aircraft major components (left wing and rear fuselage) the Alenia assembly line in Turin-Caselle builds items for the whole fleet of the customer nations.

The Italian Air Force took delivery of the first Typhoons during 2004 (delivered to the 4th Wing at Grosseto air base). Today also the 36th Wing flies with the new fighter.

Employment at Alenia Aeronautica and in Italy

About 3,200 staff are employed at Alenia Aeronautica's Turin and Caselle plants, and over 1,500 are currently working on development and production of the Eurofighter Typhoon (with a production capacity of around one aircraft per month). A further 500 people work on the Typhoon in the company's plants in southern Italy (Nola, Casoria and Foggia).

In Italy, the programme employs an average of around 7,200 highly qualified and professional staff a year directly (internally and externally). A further 4,800 people a year work on operations indirectly linked to the programme. It should be noted that these direct and indirect activities generate as much employment again in services. The programme therefore provides a total of around 24,000 jobs a year (directly, indirectly and in services): around 50% in the north and 50% in central/southern regions.

Eurofighter production will have a direct and indirect impact on employment, and on the European and Italian economies in general, for at least 15 years.

Alenia Aermacchi

With a stake of approximately 4%, Alenia Aermacchi plays an important role in the Eurofighter programme. The company designed, developed, and is currently producing the wing tips, wing pylons, the wing-to fuselage fairing and components for the engine nacelles of the aircraft. Alenia Aermacchi has also carried out exhaustive wind tunnel testing of the new fighter plane.

SELEX Galileo

Galileo Avionica and SELEX Sensors and Airborne Systems have begun to operate internationally as a single company, within Finmeccanica, known as SELEX Galileo. SELEX Galileo is a key partner on the Eurofighter. With SELEX Galileo activities, Finmeccanica share in the Typhoon avionics is more than 60%.

The participation in the Eurofighter programme includes productions carried out at SELEX Galileo UK sites of Edinburgh and Luton. The British business of SELEX Galileo leads two international consortiums EuroDASS and EuroRADAR. It also contributes further to the Eurofighter manufacturing process with its Laser Warner system.

The EuroDASS consortium supplies the state-of-the-art defensive aids suite to the Typhoon. It is designed to enhance aircraft survivability with an advanced suite of self defence sensors and countermeasures. These detect and evaluate potential threats at maximum range and then automatically deploy the most effective countermeasures without the need for crew intervention. SELEX Galileo UK leads the EuroDASS consortium, which also comprises SELEX Galileo and Elettronica of Italy, Indra of Spain and EADS of Germany.

SELEX Galileo UK was also awarded the contract to build the radar system to be used by the Eurofighter and leads the radar consortium, EuroRADAR, which includes SELEX Galileo in Italy, Indra of Spain and EADS of Germany. The Captor is a multimode radar, developed with an E-scan upgrade path.

SELEX Galileo in the UK has also developed the Laser Warner for the UK version of Eurofighter. This is a highly specialised sensor that detects laser energy impinging upon the aircraft from a range of threats, including rangefinders, designators, sensor dazzle lasers and damage lasers. The system provides full 360° coverage for the aircraft and is able to track multiple threats simultaneously.

SELEX Galileo business in Italy participates in the development and production of complex subsystems as part of the EuroRadar consortium. In particular, SELEX Galileo Italy is prime contractor for the development of relevant subsystems and airborne equipments for multi-function cockpit displays system, for navigation systems (radar altimeter), for weapons management system (computers and units for weapon deployment) and for flight control system.

SELEX Galileo in Italy is also the prime contractor for the PIRATE passive infrared target search, identification and tracking system for the aircraft. This is one of the Typhoon's most advanced mission systems, baseline on Tranche 2 aircraft, including export, with the exception of Germany and Austria. The Eurofighter programme is an important activity for SELEX Galileo in Italy, involving its Systems, Avionics Equipment, Radar Systems and Simulators and Remote Control Systems business units in Milan, Nerviano, Turin, Caselle, Pomezia and Ronchi dei Legionari, providing work for a total of around 800 employees.

SELEX Communications

SELEX Communications produces most of the aircraft's communications and navigation equipment. The equipment, installed on the aircraft of all four participating countries, consists of the Identification Friend or Foe (IFF) system; the MIDS Interface Unit (MIU) system; the Crash Survivable Memory Unit (CSMU); Microwave Landing System/MultiMode Receiver (MLS/MMR); and the Distance Measuring Equipment-Precision (DME-P) navigation system. The company is also involved in supplying Communication Audio Management Units (CAMU) and V/UHF radio systems. SELEX Communications subsidiary SIRIO PANEL's contribution to the programme entails manufacturing most of the cockpit instruments. SIRIO PANEL's equipment is found on board the aircraft of all four partner countries, and is at the cutting edge of man-machine interfaces. It includes control panels, multi-functional keypads and displays, designed by SIRIO PANEL's technical staff with the achievement of many patents and are wholly made in Montevarchi (near Arezzo) plant.