Avio Aero is a GE Aviation business focusing on design, manufacturing and service for commercial and military aeronautical engines. Today, the company provides its customers with innovative technological solutions to respond quickly to the constant changes demanded by the market: additive manufacturing, rapid prototyping and cells dedicated to streamlined manufacturing of transmissions, turbines and combustors.

Avio Aero has its head office in Italy with major plants in Rivalta di Torino, Pomigliano d’Arco (Naples) and Brindisi. Avio Aero has production sites in Poland, Brazil and China, with more than 4,700 employees worldwide (around 4,000 of whom are based in Italy).

Continuous and ongoing investment in research and development along with an established network of relationships with leading universities and international research centres, has allowed Avio Aero to develop technological and manufacturing excellence recognised across the globe: an achievement resulting from a range of collaborative partnerships with key players in the global aviation industry.

Avio Aero is committed to create and develop innovative architectures aimed at reducing energy consumption, making aircraft engines lighter and providing the best performance possible.

Continued investment in research and development along with an established network of relationships with leading universities and international research centres, has allowed Avio Aero to develop technological and manufacturing expertise recognised across the globe: an achievement resulting from a range of collaborative partnerships with key players in the global aviation industry.

Avio Aero is committed to create and develop innovative architectures aimed at reducing energy consumption, making aircraft engines lighter and providing the best performance possible.
AVIO AERO IN FIGURES

The company is founded in 1908.

Avio Aero employees worldwide including Europe, Asia, North and South America.

- Over 80%* of commercial aircraft that use at least one Avio Aero component.
- 4,700 employees worldwide including Europe, Asia, North and South America.
- OVER 24 hours, 7 days a week to support all requests.
- Accessory Gearboxes: 600 million cumulated flight hours.
- Low pressure turbines: 900 million cumulated flight hours.
- Gearboxes: >4,800 each year.
- Helicopters: >12,000 on-service engines.
- Military: >7,000 on-service engines.
- Energy & Industrial: >2,100 on-service engines.
- Commercial: >30,000 cumulated flight hours.
- Combustion systems: 500,000 cumulated flight hours.
- Power Gearboxes: 9 million cumulated flight hours (Helicopters excluded).
- Accessory Gearboxes: 600 million cumulated flight hours.
- Low pressure turbines: 900 million cumulated flight hours.
- Gearboxes: >4,800 each year.

*Source: Ascend. The percentage only includes the Airbus and Boeing in-service fleet.
EXCELLENCE IN THE WORLD

GEOGRAPHICAL PRESENCE

**POLAND**
Bielasko-Biała
Dedicated to the design and development of aeronautical modules and components, this facility manufactures rotor blades and vanes for aircraft engine turbines.

**Warsaw**
Avio Aero’s representative office for relations with the Polish government authorities.

**Zielonka (Warsaw)**
This Cold Flow Turbine test facility carries out R&D in the aeronautical industry, including the testing of engine turbine prototypes as well as technological demonstrations.

**BRAZIL**
Petropolis
The Brazilian plant carries out maintenance, repair and overhaul (MRO) activities for aircraft engines. In Brazil, Avio Aero is responsible for the overhaul of the following engines: Nothing F-5E/F Tiger, which is used by the FAB (Brazilian Air Force), and Spey MK 807, powering the AM X-Brazilian fighter jets.

**THE NETHERLANDS**
Wœnsdrecht
The company operates in the Dutch Logistics Centre for the Ministry of Defence and it performs maintenance, repair and overhaul (MRO) services for the F160 engines of the F16 aircraft employed by the Royal Netherlands Air Force.

**CHINA**
Harbin (Ji)
The Joint Venture between Avio Aero (Beijing) Aerodynamics and Aerodynamics Technology Co. Ltd. manufactures engine components for the Chinese market.

**Xi’an**
In Xi’an (Northwest China), Avio Aero develops combustors for commercial aeroengines and aeroderivative applications, turbines for industrial use and other components for the Chinese market through a joint venture with XAE - Xian Aero Engine.

**POLAND**
Bielsko-Biała
Dedicated to the design and development of aeronautical modules and components, this facility manufactures rotor blades and vanes for aircraft engine turbines.

**Warsaw**
Avio Aero’s representative office for relations with the Polish government authorities.

**Zielonka (Warsaw)**
This Cold Flow Turbine test facility carries out R&D in the aeronautical industry, including the testing of engine turbine prototypes as well as technological demonstrations.

**BRAZIL**
Petropolis
The Brazilian plant carries out maintenance, repair and overhaul (MRO) activities for aircraft engines. In Brazil, Avio Aero is responsible for the overhaul of the following engines: Nothing F-5E/F Tiger, which is used by the FAB (Brazilian Air Force), and Spey MK 807, powering the AM X-Brazilian fighter jets.

**THE NETHERLANDS**
Wœnsdrecht
The company operates in the Dutch Logistics Centre for the Ministry of Defence and it performs maintenance, repair and overhaul (MRO) services for the F160 engines of the F16 aircraft employed by the Royal Netherlands Air Force.

**CHINA**
Harbin (Ji)
The Joint Venture between Avio Aero (Beijing) Aerodynamics and Aerodynamics Technology Co. Ltd. manufactures engine components for the Chinese market.

**Xi’an**
In Xi’an (Northwest China), Avio Aero develops combustors for commercial aeroengines and aeroderivative applications, turbines for industrial use and other components for the Chinese market through a joint venture with XAE - Xian Aero Engine.
Avio Aero’s headquarters is where the company carries out its manufacturing and Research & Development activities. The plant designs and produces accessory drive trains and power transmissions, low-pressure turbine modules, rotating components for aircraft engines, automation and electronic simulation systems. 

**RIVALTA DI TORINO (TURIN)**
Avio Aero’s headquarters is the company’s primary manufacturing site. It houses the company’s manufacturing, R&D, and testing facilities. The plant specializes in the design and production of accessory drive trains, power transmissions, low-pressure turbine modules, rotating components for aircraft engines, automation, and electronic simulation systems.

**ROME**
Avio Aero’s Government Relations office.

**TURIN**
Development and certification test centre for aircraft engines and all related components.

**POMIGLIANO D’ARCO (NAPLES)**
This Avio Aero factory performs CRO (Component Repair and Overhaul) activities and manufactures aeronautical components, including combustion chambers, afterburners, blades for aircraft engines and small structural components. The facility has three aircraft engine test cells.

**BRINDISI**
The plant is the MRO (Maintenance, Repair and Overhaul) centre of excellence for military aircraft engines and also operates on aeroderivative gas turbines for marine and industrial applications. Avio Aero also manufactures the large components of low-pressure turbines for both versions of the GE90 commercial engine.

**BORGARETTO DI BEINASCO (TURIN)**
The Avio Aero foundry produces aluminium and magnesium castings using various techniques.

**CAMERI (NOVARA)**
Avio Aero uses additive manufacturing, a leading-edge technology, to produce aeronautical components. It also serves other sectors such as racing and oil & gas.

**BARI**
Energy Factory Bari is located within the Polytechnic University of Bari. It is a multidisciplinary laboratory for the design and testing of electrical machines, power converters, and their control systems.
THE WHOLE LIFECYCLE OF THE PRODUCT

Avio Aero offers its expertise in the assembly of highly technological aeronautical components ready to be integrated into the engine system.

Tests:
Avio Aero’s plants in Turin, Pompegliano d’Arco (Naples), Brindisi and Zielonka (Warsaw) perform tests on aeronautical components as well as entire engines.

MRO & CRO:
Avio Aero offers overhaul and repair of aeronautical components and maintenance, repair and overhaul of military aircraft engines. The main plants are located in Pompegliano d’Arco (Naples), Brindisi, Petropolis (Brazil) and Woensdrecht (The Netherlands).

Our Offering
Standing Strong on 4 Pillars

Technology Development
Avio Aero’s expertise and cooperation with Universities and research centres are the main pillars of its technological development.

Design/Co-Design
Concurrent Engineering, from design to production: innovative solutions that meet customer’s expectations and manufacturing needs.

Sand Casting/Additive Manufacturing
Avio Aero’s plant in Borgareto (Turin) produces a broad range of aluminium and magnesium castings. The company’s capabilities include the leading-edge additive-manufacturing technology, employed at the Cameri (Novara) plant.

Manufacturing
For over 50 years, Avio Aero has offered distinctive skills and tools for high precision mechanical processing. Its main factories are located in Rivalta di Torino (Turin), Pompegliano d’Arco (Naples), Brindisi, Białaski Biala (Poland) and Harbin (China).

Additive Manufacturing
Avio Aero’s plant in Borgareto (Turin) produces a broad range of aluminium and magnesium castings. The company’s capabilities include the leading-edge additive-manufacturing technology, employed at the Cameri (Novara) plant.

Design
Avio Aero’s plants in Turin, Pompegliano d’Arco (Naples), Brindisi and Zielonka (Warsaw) perform tests on aeronautical components as well as entire engines.

MRO & CRO
Avio Aero offers overhaul and repair of aeronautical components and maintenance, repair and overhaul of military aircraft engines. The main plants are located in Pompegliano d’Arco (Naples), Brindisi, Petropolis (Brazil) and Woensdrecht (The Netherlands).
With its strong value-added capabilities, Avio Aero is your ideal partner for the design, production and testing of power gearboxes and accessory drive trains. The company has an extensive array of skills ranging from design to manufacturing of helicopter transmissions, turboprops and turbolamps. Our engineers and highly skilled technicians are ready to provide full support and to guarantee the quality of our products.

More than 50 years of experience with leading customers, including GE, Rolls-Royce, Pratt & Whitney, Pratt & Whitney Canada, Eurojet, Snecma as well as the Italian and Brazilian air forces. The company offers innovative engineering and advanced design capabilities, manufacturing solutions and services that make Avio Aero the ideal propulsion technology partner for the aviation industry.

**Avio Aero Accessory Gearboxes Highlights**
- Unique capabilities as independent provider
- 10 - 30 MW power range
- Split Torque and Offset Planetary architectures

**Avio Aero Power Gearboxes Highlights**
- Wide variety of products with extensive in-service experience
- Up to 700 kw power range
- GBX integration with oil system

**Mechanical Transmissions**
**Power Gearboxes and Accessory Drive Trains**

**Turbofan GE9X Accessory Drive Train**
- Design and manufacturing management of complete ADT
- AGB supporting & driven accessory & oil system set & driven accessories
- Extreme integration with lube
- and fuel systems
- Aluminium casing reliability

**Helicopter AS365/EC155B Main Transmission Gearbox**
- 3 reduction stages, each with high contact ratio
- Air breathing system on final stage in main rotor
- Total contact ratio 17, 16:1
- Back-up lubrication system
- 30 min oil loss capability certified
- Aluminium and magnesium castings

**TurboProp TP400-D6 Propeller Gearbox**
- 2 reduction stages, each with high precision bi-helical gears
- Gear ratios 1:5.1
- Integral bearing races
- Structures tuned in flexibility
- Aluminium and magnesium castings
- High power density and efficiency

**Meccaniche dell’Emilia**
**Mechanical Creations**

**Avio Aero ACCESSORY GEARBOXES HIGHLIGHTS**

**Avio Aero Power Gearboxes HIGHLIGHTS**
Avio Aero has over 35 years of experience in the design and manufacture of turbine modules for military, commercial, industrial and marine applications. Through leading-edge technologies, such as additive manufacturing, the company is able to provide customers with highly reliable and innovative products: from RB199 to EJ200, from the GE90 to CT7, all the way up to the GEnx engine.

Avio Aero offers design and manufacture capabilities, highly skilled international teams and maintenance, repair and overhaul (MRO) services. The company is the ideal partner in all stages of the product’s life cycle, from the module to the integration of the engine.

**Avio Aero Skills**
- A large and ample track record in the design and manufacture of components and modules
- Increasing responsibilities for the integration of modules and components
- Distinctive design tools
- Unique knowledge of additive manufacturing on TiAl materials

**Avio Aero Low Pressure Turbines Highlights**
- World largest LPT with 115K lbf of thrust (GE90)
- World most efficient turbine (GEnx)
- Cold Flow testing capability

---

**Avio Aero Low Pressure Turbines Highlights**

- **World largest LPT** with 115K lbf of thrust (GE90)
- **World most efficient turbine** (GEnx)
- **Cold Flow testing capability**

---

**Low Pressure Turbines**

- **Avio Aero**
- Cold Flow Turbine Test Facility Zielonka (Warsaw) - Poland

---

**Distinctive Technologies**

- TiAl blades by EBM
- Innovative Low Noise Technologies
- High Aspect Ratio Airfoil Mistuning
- Aggressive DUCT & Functional TRF
- 3D patented Optimal Profiles
- Tip Timing for Health monitoring
- Acoustic liners by ALM
- Net shape Hippping

---

**Avio Aero Skills**

- CAD/CAM Tool path Design and Simulation
- Ultra High Pressure Coolant (up to 300 bar)
- Automatic thickness measurement with robotic ultrasonic sensor
- Probe for Automatic in process measurements and toolpath adjustment
Over 30 years of experience and a wide range of products, from the EJ200 to the PW100 and APU. From business jets to the regional and narrow body aircraft, we are confident that our expertise in design, manufacturing and testing will contribute to the success of your applications.

Over 15 years of experience in the machining of superalloys (Inconel718, Waspaloy, etc.) and in the production of LPT casings and frames. Avio Aero’s design, manufacturing and testing expertise are the strengths that make it an exceptionally reliable partner.

---

**AVIO AERO SKILLS**
- Established technologies of production
- Design-for-manufacturing methodologies (e.g., additive manufacturing - DMLS) for the reduction of development time, cost and weight
- Availability of all the development tools (methodologies of design, rapid manufacturing, experimental test benches, research network)
- Experience on combustors of all sizes

---

**AVIO AERO COMBUSTION SYSTEMS HIGHLIGHTS**
- Rich and lean burn combustor architectures
- Afterburners and exhausts for military engines
- Combustion systems field support and repair
- Full Annular Combustor Testing capability

---

**DISTINCTIVE TECHNOLOGIES**
- Laser drilled Effusion cooling technology for combustor liners (design and manufacturing)
- Lean burn and conventional injection systems by Additive Manufacturing (DMLS)
  - EBW
  - Plasma spray
ADDITIVE MANUFACTURING AND SAND CASTING

Avio Aero
A GE Aviation Business
Avio Aero is your ideal partner in the production of high-tech components using additive manufacturing for the aerospace, energy and racing sectors. The process of melting powders to make objects from 3D models, with the fusion of successive layers of powder - instead of subtractive manufacturing processes - reduces material costs and increases the range of alloys available.

Avio Aero uses two different technologies:

- **DMLS (Direct Metal Laser Sintering)** uses a laser beam to melt the material into the required form.
- **EBM (Electron Beam Melting)** uses an electron beam in the material melting process.

Additive manufacturing can be used for materials that are difficult to cast. To make this possible, Avio Aero has developed metal powders specifically for Laser Metal Deposition (LMD), Selective Laser Melting (SLM) and Electron Beam Melting (EBM): these powders have been optimised to deliver a dependable, high-quality product at an affordable price. All powders are supplied with complete certificates of conformity.

TiAl alloy blades manufactured with EBM technology are a lower-cost solution to casting issues such as expensive tooling and stock material management. At the same time, they achieve unsurpassed mechanical properties and offer competitive rough parts costs. Blades can be as long as 350 mm and be easily machined to the required shape, either with conventional HS milling or by ECM. The EBM process is performed in a vacuum, so the remaining powder is not contaminated and can be reused. The machined item is free of contamination: no risk of hard oxides in the casting, and machining is easier. Blades can be processed in clusters, depending on the size.

**ADVANTAGES**

- **WEIGHT REDUCTION & PERFORMANCE IMPROVEMENT**
  - AM allows addition of material only where it is needed
  - AM enables weight reduction via topological optimisation
  - Integration of multiple part numbers into one

- **MECHANICAL PROPERTIES**
  - Mechanical properties superior to casting

- **LEAN MANUFACTURING**
  - Significant scrap rate reduction vs. traditional casting

- **COST REDUCTION**
  - Lighter means cheaper
  - Lead Time reduction
  - No vendor tooling
  - WIP Optimization

- **FREEDOM OF DESIGN**
  - AM can produce an object of virtually any shape
  - Increasing object complexity will not increase production costs

**ADVANTAGES**

- **FREEDOM OF DESIGN**
  - AM can produce an object of virtually any shape
  - Increasing object complexity will not increase production costs

- **WEIGHT REDUCTION & PERFORMANCE IMPROVEMENT**
  - AM allows addition of material only where it is needed
  - AM enables weight reduction via topological optimisation
  - Integration of multiple part numbers into one

- **MECHANICAL PROPERTIES**
  - Mechanical properties superior to casting

- **LEAN MANUFACTURING**
  - Significant scrap rate reduction vs. traditional casting

- **COST REDUCTION**
  - Lighter means cheaper
  - Lead Time reduction
  - No vendor tooling
  - WIP Optimization

- **FREEDOM OF DESIGN**
  - AM can produce an object of virtually any shape
  - Increasing object complexity will not increase production costs
Avio Aero offers technologies and capabilities to design and produce a wide range of aluminium and magnesium castings of different sizes for the aeronautical industry: from components for the GE9X engine, powering the B787 and 747-8 aircrafts, to the powerful TP400 turboprop. With its ability to provide concurrent engineering, co-design, process simulation, experience, high quality and on-time delivery, Avio Aero is the ideal propulsion technology partner for the aeronautic industry.

**SAND CASTING**

**TECHNOLOGICAL SKILLS**

- Co-design with customer engineering
- Process simulation
- Tool concept definition, design and construction
- Fast sample production with rapid prototyping technology
- Gravity precision sand casting: aluminium and magnesium alloys
- Low turbulence casting: large and complex aluminium alloys castings with high quality requirements
- Differential pressure sand casting: complex castings in highly reactive magnesium alloys
4th Pillar
MRO & CRO Services
Avio Aero is a recognized provider of MRO (Maintenance, Repair and Overhaul) services to a wide range of engines, including EJ200, T700, Spey Mk 807 and LM2500.

Avio Aero offers CRO (Component Repair and Overhaul) services for the components that the company designs and produces for the GE9X, GE9F, Trent900 and V2500 engines. Its highly skilled engineers and technicians are ready to provide support and to guarantee the quality of all MRO & CRO services.

Avio Aero has developed and patented high-technology overhaul and repair processes. The company also offers direct product support to airline companies through a dedicated web tool:


**MRO & CRO SERVICES**

**REPAIR SKILLS**

- Plasma spray
- Thermal spray
- Wire spray
- Cold spray
- HVOF (High Velocity Oxygen Fuel)
- PVD (Physical Vapor Deposition)
- Heat treatments
- High pressure water jet stripping
- Shot peening
- Glass bead peening
- ESD (Electro Spark Deposition)
- Thermal spray monitoring system (Accuraspray)
- Inorganic and organic painting
- Sand blasting and stripping
- Tumbling
- Laser cladding
- Super-polishing
- Adjustments
- High-precision static and dynamic balancing

**SPECIAL PROCESSES**

**AVIO AERO CRO ON TURBINE MODULES, GEARBOXES AND OIL SYSTEMS**

**AVIO AERO MRO ON ENGINES**

Plasma spray
Thermal spray
Wire spray
Cold spray
HVOF (High Velocity Oxygen Fuel)
PVD (Physical Vapor Deposition)
Heat treatments
High pressure water jet stripping
Shot peening
Glass bead peening
ESD (Electro Spark Deposition)
Thermal spray monitoring system (Accuraspray)
Inorganic and organic painting
Sand blasting and stripping
Tumbling
Laser cladding
Super-polishing
Adjustments
High-precision static and dynamic balancing

Contact us for all of your technical needs
Through its involvement in major European aviation engine programs, 
Avio Aero has developed outstanding skills in this area. The company believes in the constant innovation of its products and invests in the development of more eco-friendly, highly performing and extremely competitive technologies and products, in line with its own strategic objectives, with the guidelines developed by the Advisory Council for Aeronautics Research in Europe (ACARE) in the “Vision2020” and “Flightpath 2050”, and with the engineers’ roadmaps. Avio Aero’s main programs aim to develop distinctive technologies for the next generation of aircraft engines. The research in which Avio Aero is engaged - focusing on materials, products and processes designed for accessory transmissions, turbines and combustors - is geared towards medium-long term strategic development.

**Mechanical Transmissions**

Avio Aero is engaged in research on power transmissions for the development of new technologies as well as the design of technology demonstrators for innovative engine configurations.

The company guides the activities of two Clean Sky demonstrators oriented towards more “radical” engine architectures (Integral Drive System with MTU and Open Rotor with Snecma). These activities, together with the technological development initiatives promoted by Avio Aero within the European and national frameworks, complete an intensive program of technology readiness for future architectures and enable Avio Aero to consolidate its role as leader for power transmissions.

With regard to materials, Avio Aero conducts activities aimed at reducing process costs through the development of the direct hardening process. In addition to being eco-friendly, this process helps to avoid copper plating and stripping; in parallel, the company is currently performing research on materials that are able to withstand the greater amount of stress placed on high concentration power transmissions.

**Turbines**

Avio Aero has been working on the development of a technology roadmap for the design of a low-pressure turbine for future applications on engines for widebody aircraft with high By-Pass ratio. The innovation and development of enabling technologies for next generation turbines providing high efficiency and low environmental impact constitute distinctive elements of this initiative.

Within the area of “radical” engine architectures, the Clean Sky program, through the SAGE 2 demonstrator for Open Rotor engines with Snecma, Avio Aero was responsible for the integrated module, consisting of the Optimised Power turbine and gearbox for power transmission to the contra-rotating propellers. This will lead to the development of enabling technologies for the design of the Optimised Power Turbine, a distinctive element of “geared” engine architectures. In addition, as part of the third phase of the Italian-Russian program sponsored by the Italian Ministry of Defense for the development of new technologies for the turbines platform, Avio Aero leads the research program in collaboration with Russian partners CIAM and VIAM with the objective of improving “solid” design techniques, reducing noise emissions, and using innovative alloys for next generation low-pressure turbines.
Avio Aero’s research on combustors is aimed at the creation of a new generation of lower emission systems that meet environmental, cost-effectiveness and reliability requirements for next-generation narrowbody aircraft engines.

Avio Aero conducts research under the second Program Contract of the Regional Government of Puglia for the development of new technologies for repairing low-pressure turbine casings and recovering worn rotor blade surfaces. Avio Aero also works in the LABREP program activities, funded by the Ministry of Education and Research at national level, which focuses on the development of advanced repair technologies for the recovery of turbine and gearbox main components, mainly for the GE90 engine. Among the most innovative technologies already successfully tested is the selective removal of damaged coating using Waterjet, the application of new coatings with High Velocity Oxy Fuel (HVOF), repair of small defects using Electro-Spark Deposition (ESD) and the removal of surface wear on gears by superfinishing techniques. Other activities already underway include repairs using environmentally friendly products free of hexavalent chromium, Cold Spray repair techniques, Laser deposition techniques and the use of thermography as a method of non-destructive testing for coating evaluation.

INNOVATION

Avio Aero’s research on combustors is aimed at the creation of a new generation of lower emission systems that meet environmental, cost-effectiveness and reliability requirements for next-generation narrowbody aircraft engines.

Avio Aero conducts research under the second Program Contract of the Regional Government of Puglia for the development of new technologies for repairing low-pressure turbine casings and recovering worn rotor blade surfaces. Avio Aero also works in the LABREP program activities, funded by the Ministry of Education and Research at national level, which focuses on the development of advanced repair technologies for the recovery of turbine and gearbox main components, mainly for the GE90 engine. Among the most innovative technologies already successfully tested is the selective removal of damaged coating using Waterjet, the application of new coatings with High Velocity Oxy Fuel (HVOF), repair of small defects using Electro-Spark Deposition (ESD) and the removal of surface wear on gears by superfinishing techniques. Other activities already underway include repairs using environmentally friendly products free of hexavalent chromium, Cold Spray repair techniques, Laser deposition techniques and the use of thermography as a method of non-destructive testing for coating evaluation.

Avio Aero is an associated partner of the public-private consortium Clean Sky, which is one of the high-level integrated technology platforms launched by the European Commission in the 7th Framework Programme (Joint Technology Initiatives). The programme includes six macro-areas (large aircraft, regional, helicopters, engines, eco-friendly systems and designs), and will lead to the construction of large-scale technology demonstrators for aircraft.

Avio Aero participates in the development of 2 innovative demonstrators (Open Rotor and Geared Fan) while in charge of development for Turbines and Power Transmissions.

**European research** has the objective of demonstrating, through the construction of technological demonstrators, the ability to achieve extremely ambitious targets for the engine sector defined by ACARE (Advisory Council for Aeronautics Research in Europe). At European level, the Vision 2030 and Flightpath 2050 initiatives define the high-level goals set by the aviation industry, providing a reference for research initiatives (FP7, Horizon 2020 and Clean Sky).

**OPENAIR (Optimisation for Low Environmental Noise Impact)** is a project that focuses on the reduction of noise pollution with the aim to reduce aircraft noise by 2.5 decibels. The main purpose of the program for Avio Aero is the development of methods for the optimal design of turbine exhaust lavatory panels as well as the numerical forecast of aero-acoustic codes.
Avio Aero has collaborated with the main players of the global aviation industry for decades: from GE, which Avio Aero is now part of, to Rolls-Royce, through the most important consortia such as Eurojet. These collaborations continue in the name of research, continuous technological innovation and growing international challenges and opportunities, thanks to our reliability as well as unique and distinctive capabilities.

**GE Aviation**
Since the 40s, the company has continued its collaboration with GE Aviation for the construction - first under license and then on our own design - of several engines in the field of aeroderivative and aircraft gas turbines: from the historic LM2500 to the recent and innovative GE90 engine, the world’s most advanced engine used for the B787 Dreamliner and the B747-8. Today, Avio Aero is a GE Aviation company.

**Rolls-Royce**
The origin of the Eurojet consortium dates back to the historic Avio Aero collaboration with Rolls-Royce and MTU, which began at the end of the 1960s for the RB199 program, for engine construction of the Tornado military aircraft. The Eurojet consortium started at the EJ200 program, which started in the early 1990s. In 1998 the Italian, German, Spanish and British Governments formally authorised the development of the fighter known as the Eurofighter Typhoon and of its engine, the EJ200.

**Pratt & Whitney**
Avio Aero has collaborated with Pratt & Whitney since the mid-eighties for the PW 2037 engines, followed by the PW 4000. Currently, Avio Aero is working on the transmission system for the Pure Power® PW1500G engine, the new propulsion system for the Bombardier C Series.

**Pratt & Whitney Canada**
Avio Aero has been part of the PW1500G engine program since the mid-eighties. Today, Avio Aero is working on the transmission system for the PW1500G engine, the new propulsion system for the Bombardier C Series.

**Turbounion**
Avio Aero’s historic collaboration with Rolls-Royce and MTU from the late 1960s has led to the design and implementation of the RB199 engine, which powers the Tornado military aircraft. Turbounion’s current single mission is to deploy activities in support of this military engine. The Turbounion experience gave rise to the Eurojet Consortium for the military engine EJ200.
Avio Aero pursues quality and innovation, and has been doing so for over a century, thanks to the passion and talent of its people, who are committed to attaining excellence in their everyday work. Our culture is built on collaboration, transparency & compliance. Our 4,700 employees, working in facilities across Italy, Poland, Brazil and China, live by our Purpose Statement: to invent the future of flight, lift people up and bring them home safely. We have a passion for technology & innovation, are inclusive and focused on quality & safety! Our pride and passion is unmistakable in our culture, in the way we work and in how we develop talent. Underlying all this is the principle of integrity: at Avio Aero, not only what we do, but also the way in which we do it counts. For this reason, the Company invests continually in the development of its people, through on-the-job training, job rotation, and training programmes. We not only provide technical training, but also, and above all, cultural and leadership training: our goal is to invest in our people today so as to build the leaders of tomorrow. Underlying all this is the principle of integrity: at Avio Aero, not only what we do, but also the way in which we do it counts. For this reason, the Company invests continually in the development of its people, through on-the-job training, job rotation, and training programmes. We not only provide technical training, but also, and above all, cultural and leadership training: our goal is to invest in our people today so as to build the leaders of tomorrow. Underlying all this is the principle of integrity: at Avio Aero, not only what we do, but also the way in which we do it counts. For this reason, the Company invests continually in the development of its people, through on-the-job training, job rotation, and training programmes. We not only provide technical training, but also, and above all, cultural and leadership training: our goal is to invest in our people today so as to build the leaders of tomorrow.

HOW TO APPLY
Applying to work at Avio Aero is easy. Simply visit http://jobs.gecareers.com/ to search our job vacancies worldwide. Here you can also find job vacancies at GE. Considering the size of GE and the many opportunities we offer, we suggest you start by browsing the section "Search Jobs by Location", which allows you to filter search results based on country/region. The easy-to-navigate map shows vacant positions by location. Following this, you will be asked to complete a registration form and submit your application/CV.

FROM ITS ORIGINS TO PRESENT-DAY

1908
Activities start with the development and production of the first aeronautical engine - SA 8/75 - derived from a racing car engine.

1915
Starting from the First World War, complete aircraft are designed and built.

1969
The aircraft business is sold to Aeritalia (Finmeccanica) and work focuses on the construction of aeronautical engines.

1996
With the creation of Avio Polska in Bielsko-Biało (Poland) the Group internationalisation process begins.

2001
The company leaves the Fiat Group and shortens its name to Avio, becoming an independent player in the global aerospace industry.

2003
In a result of the acquisition of Philips Aerospace assets, Ousthoven is founded, which deals with the production of components for aeronautical engines. In the following years, the Group also founded a centre in the Netherlands for the overhaul of military aircraft engines.

2005
As a result of the acquisition of Philips Aerospace assets, Ousthoven is founded, which deals with the production of components for aeronautical engines. In the following years, the Group also founded a centre in the Netherlands for the overhaul of military aircraft engines.

2010
Avio focuses on emerging markets and lays the groundwork for the establishment of two joint ventures in China: one for the development and production of combustion chambers, the other dedicated to power transmissions for helicopters, both of which are aimed towards the Chinese aviation market.

2011
Since 2008, Avio is in charge of overhaul and providing operational support for the Spey, the engine of the Brazilian Air Force’s AM-X fighter plane, but its presence in the Country is consolidated by the acquisition of Focal Aeronautic, active in the maintenance, repair and overhaul of military aircraft engines.

2012
Two important cooperation agreements in the field of aero-engineers are signed in the first half of 2012: with Pratt & Whitney PurePower® PW1000 -JM production and Snecma (Safran Group) for the Leap engine.

In December 2012, GE announced the signing of an agreement to acquire the aviation business of Avio. On August 1st, 2013, GE completes the acquisition of the aviation business of Avio SpA whose name is changed to Avio Aero. The purchase price amounts to $4.3 billion ($3.3 billion).
<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Phone Numbers</th>
</tr>
</thead>
</table>
| RIVALTA DI TORINO (TURIN)        | Via I Maggio, 99
10040 Rivalta di Torino (TO) - Italy                                    | +39 011 0082111                                      |
| TURIN                            | Strada del Drosso, 145
10135 Turin - Italy                                                       | +39 011 0084749                                      |
| ROME                             | Via Barberini 86
00187 Rome - Italy                                                        | +39 06 80311520                                      |
| POMIGLIANO D’ARCO (NAPLES)       | Viale Giuseppe Luraghi, 20
80038 Pomigliano d’Arco (NA) - Italy                                      | +39 081 3161111                                      |
| BRINDISI                         | Via Angelo Titi, 16 - 18 - 20
72100 Brindisi - Italy                                                    | +39 0831 566111                                      |
| BORGARETTO DI BEINASCO (TURIN)   | Via Rondò Bernardi, 15
10092 Borgaretto di Beinasco (Turin) - Italy                            | +39 011 0054111                                      |
| CAMERI (NO)                      | Strada provinciale Cameri
Bellinzago, Km3, Cameri (No) - Italy                                     | +39 0321 034581 / +39 011 0082901                   |
| BARI                             | Via Amendola, 132
70125 Bari - Italy                                                        | +39 080 9262480                                      |
| PETROPOLIS – RIO DE JANEIRO (BRASIL) | Avio do Brasil Fabricação e Manutenção de Motores e Peças para Aeronaves Ltd
Rua João Xavier, 168, galpões 02 e 03
Duarte da Silveira, CEP 25665-442, Petrópolis, RJ - Brasil | +39 011 0082111                                      |
| WOENSRECHT (THE NETHERLANDS)     | DutchAero Services
Kooiweg 40-41 bld 127
PObox 77
4630 AB Hoogerheide - The Netherlands                                    | +39 011 0084749                                      |
| BIELSKO-BIALA (POLAND)           | ul. Grażyńskiego 141
43-300 Bielsko-Biała - Poland                                            | +39 0831 556111                                      |
| WARSZAWA (POLAND)                | ul. Powązkowska 15
01-797 Warszawa - Poland                                                 | +39 0831 556111                                      |

CONNECT WITH US:
transmissions@avioaero.com
turbomachinery@avioaero.com
sandcasting@avioaero.com
mroandcro@avioaero.com
additive@avioaero.com
combustors@avioaero.com
framesandcases@avioaero.com

www.avioaero.com AvioAero @AvioAero AvioAero