SAFRAN IS AN INTERNATIONAL HIGH-TECHNOLOGY GROUP, and tier-1 supplier of systems and equipment in the Aerospace and Defense markets. Operating worldwide, Safran has nearly 58,000 employees and generated sales of 15.8 billion euros in 2016. Safran undertakes Research & Development programs to meet fast-changing market requirements, with total R&D expenditures of 1.7 billion euros in 2016. Working alone or in partnership, Safran holds world or European leadership positions in its core markets.

A maker of aircraft engines for 110 years, Safran, through its Aircraft Engines subsidiary, designs, develops, produces and markets, alone or in partnership, engines for civil and military aircraft, and for satellites. Our business is based on a clear vision of the market, unrivaled expertise, state-of-the-art production capabilities and a complete range of services for optimized engine maintenance and fleet management. Given the challenges of the fast-growing aviation market, Safran Aircraft Engines is building foundations for the future and planning ahead to meet customers’ evolving requirements by investing in new technologies and developing engines that are even friendlier to the environment.
CFM International, the 50/50 joint company between Safran Aircraft Engines and GE, develops, produces and markets the CFM56® engine, as well as its successor, the LEAP®. In 2008, Safran Aircraft Engines and GE renewed their CFM partnership through 2040 and expanded its scope to include services. CFM International has delivered more than 31,000 engines to over 570 customers worldwide, making it the leading supplier of engines for civil aircraft. These engines mainly power the Boeing 737 and Airbus A320 families of single-aisle commercial jets.

The CFM56® is the world’s best selling engine in its class. Recognized for its unexcelled reliability and low operating and maintenance costs, the CFM56® powers some 13,400 airplanes now in service. Its successor, the LEAP®, powers the new generation of single-aisle commercial jets. The LEAP® delivers exceptional performance, while maintaining the legendary reliability of the CFM56®.

Selected by the world’s leading planemakers

Airbus A320neo family
Boeing 737 MAX family
Comac C919

LEAP® ENGINE
THE BEST TECHNOLOGIES FROM SAFRAN AIRCRAFT ENGINES AND GE

The LEAP® engine is designed, developed, produced and marketed by Safran Aircraft Engines and GE through CFM International. Three different LEAP® versions have already been selected to power the new generation of single-aisle commercial jets from the world’s leading manufacturers: LEAP-1A for the Airbus A320neo, LEAP-1B for the Boeing 737 MAX, and LEAP-1C for the Comac C919. This advanced turbofan incorporates the best technologies and materials from its two parent companies, such as 4th generation 3D aero design, 3D woven composites using the RTM (resin transfer molding) process, and titanium aluminide. The result is a significant decrease in fuel consumption, CO₂ emissions and noise, while maintaining the industry standard reliability of CFM engines. CFM International has already recorded over 12,300 orders and commitments for the three versions of the LEAP®.

12,300+ orders and commitments

15% decrease in fuel consumption*

15% decrease in CO₂ emissions*

SAFRAN AIRCRAFT ENGINES

* versus previous-generation engines.
Safran Aircraft Engines has designed and is developing a new-generation engine in the 9,500 to 12,000-lb thrust range to meet growing power needs in the premium business jet segment. The Silvercrest® engine has already been selected by Dassault Aviation for the Falcon 5X and by Cessna for its new large-cabin bizjet, the Citation Hemisphere.

The Silvercrest will offer unrivaled performance in this market, in terms of fuel consumption and environmental-friendliness. To ensure maximum dispatch reliability, Safran is offering Silvercrest users premium 24/7 global support, and a comprehensive range of innovative services, tailored to each customer’s needs.

The SaM146® integrated propulsion system was developed by Safran Aircraft Engines and NPO Saturn through their 50/50 joint company, PowerJet. Optimized for the new-generation Sukhoi Superjet 100 (SSJ100) regional jet, it covers the thrust range from 15,400 to 17,800 lb. Since entering service in 2011, the SaM146® has recorded an exceptional dispatch reliability rate of 99.9%, along with easy adaptability to all environments. There are two versions of the SaM146®, 1S17 and 1S18. The latter extends the range of the SSJ100, and is installed with just a simple software change. PowerJet also offers all SSJ100 operators a complete range of dedicated SaM146® services, under the PowerLife™ label.
Safran Aircraft Engines provides complete and coordinated customer support services for the service entry and operation of the CFM56®, GE90, GP7200, SaM146® and LEAP® engines. Carefully tracking customers’ changing requirements, Safran Aircraft Engines calls on the expertise built up during more than 860 million flight-hours logged by CFM® engines. We count on teams who are in permanent contact with our customers, a 24/7 Customer Support Center, a dedicated Customer Web Center, a training center with over 100 programs and our global maintenance, repair and overhaul (MRO) network.

Safran Aircraft Engines provides support services for over 570 CFM operators, in a commercial coverage zone spanning half the world.

CUSTOMER SUPPORT

ENGINES ARE AN ESSENTIAL PART OF AN AIRCRAFT’S TOTAL VALUE: THEY REPRESENT 35% OF THE AIRCRAFT’S VALUE AT PURCHASE... AND 85% AFTER 15 YEARS!

Both operators and passengers demand aircraft availability, the key to efficient air transport. Safran Aircraft Engines offers a complete range of services, either through CFM or via our own EngineLife package of services, to allow airlines to make their operations as efficient as possible and focus on their core business. We have a three-pronged objective: understand, satisfy and anticipate customer expectations, around the clock and worldwide.

From entry into service to dismantling, from on-wing maintenance to by-the-hour contracts that optimize operations and costs, Safran Aircraft Engines offers comprehensive services covering the engine’s entire lifecycle. We also deploy a world-class international maintenance, repair and overhaul (MRO) network.

At the same time, we are developing innovative new services, based on advanced flight data analytics, as well as high-value-added recommendations to operators.

SERVICES: UNDERSTAND, SATISFY, ANTICIPATE

Focus

SFCO®

a high-value-added service

Safran’s Aircraft Engines and Electronics & Defense businesses have pooled their expertise to offer a new service to airlines and other operators. Dubbed SFCO®, it is designed to reduce operating costs (in a sector where fuel accounts for 30 to 40% of total costs) by optimizing fleet operations. SFCO® addresses a strong demand from airlines to keep costs under control and identify potential savings achieved through more efficient management of their operations. Safran Electronics & Defense brings to the table its experience in flight data analysis, while Safran Aircraft Engines contributes its expertise as an engine manufacturer, plus its broad vision of aircraft operations.

[ Did you know? ]

13,400 CFM56®-powered aircraft in service

1 million more flight-hours each week

25,000 commercial engines and modules repaired

Customer satisfaction
SAFRAN, PARTNER TO THE WORLD’S ARMED FORCES

Building on more than a century of experience in military aircraft engines, Safran has developed a relationship of mutual trust with armed forces. Engines designed, developed and built by Safran Aircraft Engines cover the needs of combat, transport and training aircraft for today’s armed forces. The M88 and M53 power, respectively, the Rafale and Mirage, two of the highest performance fighters in the world. Perfectly suited to a wide range of combat missions, these engines have amply demonstrated their capabilities in combat. Other iconic aircraft powered by engines made by Safran, alone or in partnership, include the TP400™ turboprop powering the Airbus A400M military transport, and Larzac® engines for Alpha Jet trainers. More than 4,700 powerplants from Safran Aircraft Engines are now in service with over 30 armed forces, powering some 20 different types of aircraft.

At Safran Aircraft Engines, we provide maintenance services designed to ensure that our engines meet all customer requirements. Since 1966, we have serviced over 25,000 military aircraft engines, and we have the resources and capabilities needed to keep engines, modules and components in fighting trim: the M88 (Rafale), M53 (Mirage), Tyne (turboprop powering the Transall and Atlantic) and Larzac (Alpha Jet trainer). For the TP400™ turboprop, we also provide armed forces with MRO services, including repair, maintenance, spare parts and 24/7 support. Furthermore, armed forces deploying CFM56®-powered planes can count on the vast MRO network deployed by Safran Aircraft Engines and GE.

THE M88 ENGINE CAN BE REMOVED AND REINSTALLED IN ONE HOUR, BY TWO PERSONS.

Did you know?

UNRIVALLED REPAIR CAPABILITIES
Innovation

Safran Aircraft Engines is on a fast track to the Factory of the Future. We are implementing more and more innovative solutions on our production lines, which help reduce the time needed to gear up for production, support a “zero defects” approach, and guarantee on-time delivery and impeccable quality for our customers.

The Factory of the Future concept can be seen above all in the new assembly facilities for the LEAP® engine. Our LEAP pulse lines have a capacity of 500 engines per year and per line. They incorporate a number of technological innovations, such as management via touch screens, positioning of components on these engines using virtual reality systems, and handling via articulated assembly stands. Safran Aircraft Engines also deploys a rolling line for the assembly of fan modules on the LEAP®. In this system, the fan is placed on an automated shuttle guided by RFID (radio-frequency identification) chips and moves from workstation to workstation.

Robots, cobots, additive manufacturing, augmented reality, big data, digital continuity from design to build… The Factory of the Future is right now at Safran Aircraft Engines!

At Safran Aircraft Engines, we’re constantly studying different architectures and concepts for tomorrow’s engines, in an effort to achieve considerable improvements in fuel consumption and operating costs.

One of these architectures is the counter-rotating open rotor (CROR), developed within the scope of the European research program Clean Sky. Safran Aircraft Engines is in charge of project coordination and ground testing of the demonstrator. Unlike today’s conventional turbofans, the Open Rotor is unshrouded, and has a pair of counter-rotating fans.

Another engine architecture being studied by Safran Aircraft Engines is the ultra-high-bypass ratio, or UHBR, a turbofan with a much higher bypass ratio than today’s engines. The main structural parts in the fan module use stronger and lighter composites. A demonstrator is scheduled to test these technology building blocks and how well they can be integrated in the UHBR architecture.

Safran has also teamed up with Rolls-Royce in the 50/50 joint company Safran Aircraft Engines Rolls-Royce Ltd. The partners are now designing a new engine that could power the Next-generation Future Combat Air System (FCAS), an unmanned combat aircraft being jointly developed by France and Great Britain.

A European pioneer in electric propulsion, Safran Aircraft Engines offers a wide range of plasma (electric) thrusters for propulsion and orbital control duties on space probes and satellites. These highly efficient propulsion systems allow geostationary satellites to increase payload weight, and/or reduce launch costs.

A wide range of plasma thrusters for spacecraft