Standard of vanguard
Aerospace industry is on the cutting edge of technologic progress. It addresses challenges that propel technical knowledge ahead. A joint systematic effort of teams provides sustained excellence throughout development, integration and production. And the main driving force behind every great achievement is the engineer whose creative thinking can defy any boundaries.

We develop solutions that address current and future market challenges. Underpinned by Russia’s engineering genius we dare to think technology previously inconceivable. We translate inspiration into industry standard.

We combine creative thinking with strict engineering, production and management practices of the global aerospace industry. We believe that an idea can work miracles.

For us, aircraft engineering is more than a job, it’s our vocation.
Technodinamika Holding company was set up in 2009. It encompasses 35 entities specialized in the design and production of aerospace systems and employing about 30,000 people. Today, our company is the Russian leading supplier of systems and components for airplanes and helicopters based on our capabilities cover the full life cycle of our products, ranging from design and manufacture to after-sales support & services.

Technodinamika offers its customers a unique price/performance ratio, based on Russian engineering value with the benefit of an extensive aerospace technological reservoir to design and produce new-generation systems compliant with the most up-to-date manufacturing and quality standards.

A number of large-scale projects are currently underway with the largest Russian aircraft and engine manufacturers like United Aircraft Corporation, Russian Helicopters and United Engine Corporation, as well as with international companies such as Safran, Curtiss-Wright Corporation, etc. Among our customers using maintainance and support services are major Russian airlines such as Aeroflot, Utair and S7.

Electrical Ground Taxiing System
Electrical ground taxiing system uses electrical motors for driving the main landing gear wheels. It allows aircraft to taxi without running the main engines, reduces fuel consumption by up to 4 %, decreases engine maintenance costs and limits the risk of engine Foreign Object Debris (FOD) damage while taxiing.

Helicopter Crash-Resistant Fuel System
This new helicopter fuel system cuts the risks of fuel leaks and deadly fires after accident and emergency landing, and is compliant with latest EASA CS-29 and FAA requirements. Technodinamika enhances helicopter safety standard with this system which incorporates new technologies as additive manufacturing and innovative materials able to resist to high temperature and pressure.

Electrical Landing Gear Extension/Retraction
Technodinamika is carrying out research in the field of landing gear electrification by developing electromechanical actuators for the extension/ retraction operations. This type of actuator will contribute significantly to improved performance and reliability, as well as reduce weight and size of the system. This new actuation system will support the development of more electric aircraft and will enhance Technodinamika’s capabilities to meet future aviation demand.

Casting Technology Competence Center
Technodinamika Casting Technology Competence Center fully meets the holding’s needs for semi-finished casting products and offers its services to external customers. The Center has magnesium, aluminium and steel casting technologies. High precision of production reduces blanks weight up to 20%. The main objective of the project is to reduce costs and shorten time-to-launch for new products. To this end, the holding localizes casting production at a single facility, thereby substantially increasing the efficiency of investment and reducing the manufacturing cost of castings for series production by 15%.
Technodinamika Portfolio

- Ground support equipment
- Filters
- Ice and rain protection systems
- Parachute systems
- MRO
- Actuation systems
- Fire protection system
- Auxiliary Power Units
- Landing gear systems
- Hydraulic system
- Electric power systems
- Cabin and crew Oxygen system
- Fuel system
- Air conditioning system
- Fire protection system
- Fuel filters

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- Fuel filters
Technodinamika has extensive experience in the development and production of landing gear for commercial and cargo aircraft as well as for medium and heavy-lift helicopters.

Our company has integrated a new design process allowing our engineers to calculate and estimate the product performance at all stages of development and to execute “virtual testing.” This advanced design process provides shorter lead times, lower costs and better design quality.

Electric ground taxiing system
In 2015, Technodinamika unveiled its electric ground taxiing system, a breakthrough innovation to reduce fuel consumption for single aisle aircraft manufacturers and improve airlines’ operational efficiency. Electric motors are positioned within landing gear wheels to drive the aircraft during ground taxi operations. This innovation allows aircraft to taxi without starting the main engines and reduces fuel consumption by up to 4%, while decreasing the engine maintenance costs. The aircraft can push back fully autonomously without the use of a tug which reduces wait time and optimizes airport procedures.

Ka-62 landing gear system
Technodinamika has designed and manufactured a landing gear prototype for the newest Russian civil helicopter Ka-62. Our Ka-62 landing gear system combines advanced shock absorption technologies and retraction functions in a single assembly. This new system is perfectly adapted for offshore applications and meets demanding high vertical speed landing requirements.

II-76MD-90A new landing gear system
Technodinamika has designed and produced a new landing gear system for Russia’s modernized II-76MD-90A heavy cargo aircraft. Improved design and the use of advanced materials allow higher take-off weight up to 220 tons.

Technodinamika has extensive experience in the development and production of landing gear for commercial and cargo aircraft as well as for medium and heavy-lift helicopters.
Auxiliary Power units

Technodinamika has been designing and manufacturing APU systems since 1965 to supply airplane and helicopter manufacturers.

Technodinamika offers a complete product portfolio consisting of five APU models and 18 versions to meet all customer requirements. Our APUs have been chosen to power more than 20 types of Russian airplanes and helicopters.

New-generation APUs

Two new-generation APUs, TD-801 and TD-901, are currently under development to equip current and future aircraft platforms. Several base APU models share common design and fit to all types of airplanes and helicopters. They can be tailored to meet customer requirements with minor modifications and little cost.

Our new-generation APUs, TD-801 and TD-901, will benefit from the use of advanced technologies such as “dry” bearings in engine assemblies, high-speed permanent magnets, synchronous alternators, digitally controlled actuators of fuel and oil systems, as well as new components that improve the system performance, reliability and reduce weight and fuel consumption.

FADEC type Engine Control Unit

Technodinamika’s future APUs will be equipped with a new FADEC type Engine Control Unit to control and monitor the APU in real time, adjust aerodynamic parameters and perform self-test operations.

Such integration will extend the service life of the APU systems, optimize maintenance operations and reduce associated costs.

Ignition systems

In addition, Technodinamika is Russia’s single developer and manufacturer of ignition systems for all types of gas-turbine engines. Its ignition units share common design and manufacturing processes. A modular approach allows the units to be tailored to customer requirements.
Technodinamika is Russia’s leading supplier of electric power systems with more than 70 years of expertise in development and production. Our extensive portfolio offers comprehensive electric power solutions for aircraft platforms with high-load generators, inverters, rectifiers, power control and distribution systems.

The company is currently developing cutting-edge models of high-speed electromagnetic generator and permanent-magnet generator to radically improve the electric power system of new airplanes and helicopters.

Our engineers have improved the design of new generators by standardizing diverse base models to deliver a general-purpose generator system fitting to all types of airplanes and helicopters and offering a significant weight reduction in comparison with their international counterparts.

Technodinamika’s AC generators provide output electric power from 0.35 to 120 kW and DC generators deliver 9.0 kW at speeds of 1,200 to 6,500 rpm. These new-generation generators are designed to supply AC and DC power at speeds of 10,800 to 24,000 rpm.

Sophisticated control algorithms have been developed for a new generator control unit to provide optimal system responsiveness and improve performance.

Technodinamika’s electric power systems are designed to maximize service life. Our AC and DC generators have TBO of up to 4,000 hours. The brushless DC starter generators have a service life twice as long as the conventional aeronautic brushed DC motors while providing better power supply efficiency.
Actuation systems

Technodinamika is Russia’s leading supplier of actuation systems for domestic airplanes and helicopters. Our company pioneered the development of aerospace electromechanical systems by designing and producing the first High Lift System for transport aircraft.

Our product portfolio covers all types of electromechanical solutions:

- flight control actuation;
- thrust reverser;
- APU Air Inlet Door actuators;
- cargo door actuators;
- linear and rotary actuators;
- all types of electric motors of any voltage;
- control units, sensors and limit switches.

Technodinamika’s engineers are developing new electromechanical actuation systems to equip advanced civil aircraft such as Horizontal Stabilizer Trim Actuators, APU Air Inlet Door Actuator and cargo door actuators.

The company offers an extensive range of fully integrated aircraft actuation system including control and power units, as well as system software.

High-torque brushless DC motors for universal technological robots

Our latest development is the thrust reverser actuation system (TRAS) for the new PD-14 engine intended to power the Russian Irkut MC-21 commercial aircraft. Our latest development is the thrust reverser actuation system (TRAS) for the new PD-14 engine intended to power the Russian Irkut MC-21 commercial aircraft.

Double-motor electric rotary actuators with limited output shaft rotation

Thrust reverser actuation system

Our latest development is the thrust reverser actuation system (TRAS) for the new PD-14 engine intended to power the Russian Irkut MC-21 commercial aircraft.

Single-motor electro rotary actuators with limited output shaft rotation

Electromechanical thrust reverser actuation system for PD-14 engine (Irkut MC-21 aircraft)
Fuel system

Technodinamika offers a complete product portfolio of components for aircraft fuel system solutions to meet all customer requirements.

Technodinamika’s engineers have developed a new-generation helicopter crash-resistant fuel system to equip current and future helicopter platforms. This new helicopter fuel system cuts the risks of fuel leaks and deadly fires after accidents and emergency landing, and is compliant with latest EASA CS-29 and US FAA requirements. This system developed by Technodinamika is a new step forward in aviation safety improvement.

Technodinamika’s innovative helicopter crash-resistant fuel system features optimized design and incorporates advanced technologies such as additive manufacturing and innovative materials able to resist to high temperature and pressure.

The critical flexible fuel tank is made of lightweight rubberized fabric, while the crash-resistant fuel tank components incorporate innovative materials. The system is highly reliable and its operation costs are reduced up to 10% compared to foreign counterparts.

This first Russian helicopter crash-resistant fuel system has successfully passed tests campaign in accordance with EASA requirements, including a drop of a 350 kg fuel tank filled with water from a height of 15.2 meters (50 ft). Technodinamika’s tanks remained intact after all the test cycles without any leakage of liquid.
Fire protection system

Technodinamika has developed an integrated high-performance fire protection system for all class transport aircraft and helicopters.

New fire protection system includes sensors to detect and alert crew about temperature rise, fire or smoke occurrence in the protected compartments and fire extinguishers for engines, cabin, APU to conduct fire extinguishing operations throughout the whole aircraft.

The new system is 10% lighter and offers improved performance and reliability. It offers a longer service life (30 years) and lower operating costs compared to the others international solutions.

Our system is equipped with line-type fire detectors to monitor a larger engine area compared with traditional point detectors. Two independent channels prevent the false alarms and enhance the system robustness.

Technodinamika’s engineers have developed a modular design giving a high versatility to the Fire Protection System. Our system is adaptable to all advanced commercial and cargo aircraft, as well as all class of helicopters platforms. Such design optimization means that system components are easy to replace and maintain, which improves reliability and significantly reduces operational costs. As a result, the service life of the new fire detection and suppression system matches the service life of the aircraft.

The system is to be certified by the Aviation Register of the Interstate Aviation Committee and the US FAA.

Technodinamika has developed an integrated high-performance fire protection system for all class transport aircraft and helicopters.
The new oxygen supply system for crew and passengers for all types of civil aircraft provides the ultimate level of independence and self-supervision, dramatically increasing the safety of crew and passengers.

The system is designed to supply pilots with oxygen in routine operation mode and provide life support for the crew and passengers in case of cabin decompression or the presence of smoke.

Since the early 1970s Technodinamika has been developing, producing and servicing aircraft oxygen systems for the crew and passengers, including mobile devices for the flight crew and flight attendants.

Cabin and crew oxygen systems

The system incorporates:
• crew member oxygen unit with a full-face mask and electronic "unit open position" control;
• emergency passenger oxygen units with a built-in microchip which controls the units and provides their performance monitoring while exchanging via a digital link;
• electronic control unit that enables autonomous operation of the oxygen system, provides its performance monitoring and communicates with aircraft's avionics;
• oxygen cylinder with temperature-compensated oxygen quantity control and a multifunctional shut off/pressure reducing valve which exchanges data via a digital link;
• remote oxygen supply controller operating in manual mode and electro-discrete mode with two stable positions;
• portable oxygen supply equipment used to supply oxygen to passengers feeling unwell as well as by crew members moving around the aircraft in emergency.

The new oxygen supply system meets the strictest reliability and safety standards, provides sufficient quantity of oxygen for routine activities and emergency, rapid response, ease and convenience of use.
Technodinamika has unique experience of parachute system development, making our company one of the global leaders in this area.

Man-carrying parachute systems

Man-carrying parachute systems developed by Technodinamika are used for airdrop from fixed- and rotary-wing aircraft, pilot rescue in emergency situations, training parachute jumpers and rescuing them in case of failure of the main parachute. The systems provide for reliable operation at altitudes of 50 to 6,000 m and speeds of 140 to 600 km/h.

The cargo aerial delivery system

The cargo aerial delivery systems developed using modules of the core parachute with an area of 350 square meters can drop heavy cargo with total weight of up to 20,000 kg at speeds up to 400 km/h and at altitudes of 300 to 4,000 meters.

The parachute systems for landing of spacecraft

The parachute systems designed for soft landing of manned and unmanned spacecraft provide for high reliability during landing of a manned spacecraft, given space constraints and g-load factor limitation. The systems operate at altitudes of 1 to 50 km in the atmospheres of the Earth, Venus and Mars with spacecraft moving at subsonic or supersonic speeds.

Technodinamika develops and manufactures all types of parachute systems: personnel and training parachute systems, cargo aerial delivery systems and systems for near-Earth and deep-space applications.

Technodinamika carries out a full cycle of parachute system development: research, production, testing, modification, etc.
Filters

Technodinamika develops and produces a wide range of fine filters with washable and disposable filtering elements equipped with visual or electrical clogging indicators.

Our filters are designed for cleaning hydraulic, oil, fuel and air systems for airplanes and helicopters. Our filtering solution offers an extended operating period and service-life, as well as a lower maintenance costs.

Technodinamika has developed and launched filters with an increased contaminant holding capacity to equip the hydraulic systems of advanced aircraft.

Technodinamika’s cleanable and re-usable filters with washable filtering elements of 5 μm filtration rating are produced for aircraft hydraulic systems. This equipment has been designed and developed to provide a durable and reliable filtering solution for operating in harsh environment with sand and dust.

Our latest development is a cartridge-type filtering component of the main fuel filter for aircraft main engines with 10 μm nominal filtration rating.
Technodinamika has an extensive portfolio and proven experience with hoses, couplings, ducting and fittings for aircraft platforms.

The use of titanium alloys for producing braid and fittings of metal and fluoroplastic hoses provides 30 percent weight saving and higher corrosion resistance.

Fire resistant hoses produced by Technodinamika are installed in fire hazardous areas and designed to provide flexible connection of pipelines and components of hydraulic, air, fuel and oil systems of aircraft and ground support equipment.

Fire resistant coating ensure operation of hoses exposed to open flame (+1100 ±50)°C for 5 minutes.

Titanium alloy compensators

Fluoroplastic hoses with titanium alloy braid and fittings

High pressure fluoroplastic hoses

Fire-resistant fluoroplastic hoses
Every hour of aircraft downtime leads to extra costs. The longer aircraft stays on the ground, the higher is its operation costs. Thanks to a distribution center of Technodinamika’s Aviation Service Center, we minimize AOG time thus increasing your business efficiency.

The distribution center uses innovative approaches adopted by global leaders and profound experience in delivering and servicing aircraft equipment.

Besides, we provide a full range of scheduled and AOG services including parts exchange, logistics, components maintenance, supply of accessories and components. The Aviation Service Center offers warranty and post-warranty repairs as well as life-cycle management services for aircraft components and systems.

The Aviation Service Center includes:
- warehouse facilities located in immediate vicinity to Sheremetyevo Airport with a storage area of 1,700 square meters;
- more than 5,000 serial numbers of components and consumables available on stock;
- 24/7 AOG Desk;
- complete logistic support for components delivery.

The Aviation Service Center is one of the largest suppliers of spare parts, components and assemblies for the aviation market in Russia and CIS countries.
Technodinamika certification

EN 9100:2009
• Design and development
• Production and testing
• Delivery and management of production
• Sales
• Repair and warranty service
• Recycling

Nadcap
• Surface Enhancement: Shot Peening
  AC7117 Rev B — Nadcap Audit Criteria for Shot Peening, Peen Forming, Glass Bead Peening
  AC7117/2 Rev A — Nadcap Audit Criteria for Automated Peening
• NonDestructive Testing: FPI
  AC7114 Rev H — Nadcap Audit Criteria for NonDestructive Testing (NDT) Suppliers Accreditation;
  AC7114/1 Rev H — Nadcap Audit Criteria for NonDestructive Testing Facility Penetrant Survey;
  AC7114/1S Rev J — Nadcap Supplemental Audit Criteria for NonDestructive Testing (NDT) Suppliers Accreditation Program, S–U14 SAFRAN.