RUSSIAN AVIATION & MILITARY GUIDE

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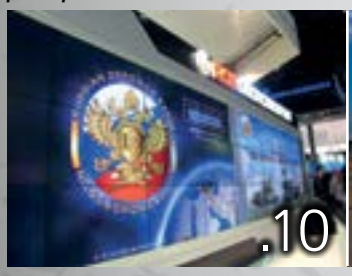

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SPECIAL PARTNERSHIP

Russia and Kuwait expand business and defensive cooperation

To compete in the world market we did a major step forward having accumulated the best industry resources and outstanding engineering expertise in a single corporation. The integration brings us strength to offer the market the best innovative solutions in the balanced product lines in commercial, military and transport aviation. In the challenging environment we grow open and build strong partnerships with the world industry leaders. We never stop nourishing fresh ideas and young talents who dare to look in to the future.

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Russian Aviation Military Guide

№01 (01) December 2015

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Deja vu

Political situation in the world makes nations once again reconsider their defense possibilities. Threat of local conflicts to be evolved into global ones, failure of worldwide system of safety and non-ending crisis – all of this leads to an unstable and dangerous situation. One can predict raise of defense means market in times like this. But together with developing of defense technologies in order to secure people's safety, rivalry among sellers of weapons and defense systems increases in order to achieve such goals as increasing profits and market share.

World experience shows that it is not about how many weapons you have, but quality and possibilities of every single one of them is what leads to victory on the battlefield. Other significant factor is technological independence from seller – modern technologies make it possible to shut down any device from any place of the globe if you have appropriate access. With hi-tech technology, solid after-sales service and proven reliability of products, Russia is honest and friendly partner for all countries, ready for mutual work.

Valery STOLNIKOV

Vladimir PUTIN and Sabah Al-AHMAD Al-JABER Al-SABAH:

Russia and Kuwait
expand business and defensive cooperation

The Emir of the State of Kuwait Sabah Al-Ahmad Al-Jaber Al-Sabah is to visit Russia on November at the invitation of Vladimir Putin. Historical meeting of leaders of two countries was in Sochi. The Russian President will have talks with the Emir to discuss key aspects of Russian-Kuwaiti cooperation, focusing on ways of enhancing bilateral cooperation in trade and the economy. The two leaders will also exchange views on pressing international matters, primarily the situation in the Middle East and Northern Africa. Experts are sure that this high meeting laid the foundation to a new stage of development of friendly and business relations between the Russian Federation and the State of Kuwait. **/RA&MG/**

Photo report from press service of the President of the Russian Federation.

Helicopters for South Korea

Helicopter Service Company (HSC) has entered into a contract with Russian Helicopters and South Korea's Department of Forest Aviation to repair four of the South Korean operator's Ka-32T helicopters

ccording to the contract, the restorations aim to increase resources so as to extend the flight times of the helicopters to 2000 hours, with a 10 year guarantee until any further major repairs will be needed. This is the first direct contract between HSC and the South Korean operator that hasn't required mediation. In the past, similar work has been carried out by LG International in its technical service centre, with HSC involved as a contractor.

The repairs detailed in the contract will be carried out by specialists from Kumertau Aviation Production Enterprise, which is also a part of Russian Helicopters. The work will take place in Wonju at one of the Forest Aviation Department's technical service centres responsible for projects of this kind. The obligations of the contract should be fulfilled within 8 months.

Ka-32 is a common model of medium-sized helicopter with coaxial rotors, two turboshaft engines and a non-retractable chassis. Ka-32 is a civilian version of the search and rescue helicopter Ka-27PS, developed by the Kamov Design Bureau. From 1985 Ka-32 helicopters were serially produced at Kumertau Aviation Production Enterprise. Today South Korea successfully employs more than 60 Ka-32 helicopters to carry out various tasks, and this fleet has accumulated a flight time of over 100,000 hours.

Comprehensive crime-fighting solutions

At the 21st Interpolitex International Exhibition of Internal State Security (October 20-23, 2015, Moscow) Rosoboronexport, part of the Rostec State Corporation, was offering foreign customers comprehensive solutions for combating crime and terrorism, including a wide range of special arms and equipment

"Since 2000 Rosoboronexport had supplied foreign customers with more than 12,000 units of special small arms and more than 200,000 pieces of special equipment, including individual protective means, special communications systems and others. Products designed for law enforcement agencies were exported to over 40 countries around the world. In recent years, the African and Latin American countries had become promising markets," said Vyacheslav Ovchinnikov, Advisor to the Rosoboronexport Director General, who headed the Company's delegation at the exhibition.

Russia's VSS OSV-96 sniper rifles, AGS-30, GM-94 grenade launchers, AS assault rifles, SR-2 sub-machine guns, PSS and SR-1 pistols enjoyed strong demand in the international market.

At Interpolitex 2015, Rosoboronexport presented the Integrated Safety and Security of Major Administrative Entities, Critical Facilities and National Frontiers project to foreign customers. Ten type detailed integrated security projects (for protecting borders, ports and coastal areas, providing security of cities and critical industrial facilities, holding mass sports events, etc) had been developed based on an assessment of existing threats. Such systems were designed to create a common information area, coordinate and control the activities of various law enforcement agencies and special services. That helped make the fight against crime, terrorism, mass unrest, and illegal migration more effective and quickly respond in case of emergencies.

More than 50 integrated security system presentations had been made to potential customers and partners from more than 30 countries throughout 2015.

Rosoboronexport took an active part in the business program of the exhibition, during which the most pressing security challenges and solutions to them using technical facilities were discussed. In particular, the Company's specialists made reports on topics related to UAV usage and riot control.

On October 24, as part of Interpolitex 2015, a demonstration of special arms and military equipment, including those being actively promoted by Rosoboronexport in the international market, was held at Geodeziya Research Institute's Testing Range (Krasnoarmeysk, Moscow Region). More than 20 Russian companies showed their innovative products for special services.

For the Sino-Russian-aircraft

Technodinamika has plans to submit its bid for development and delivery of equipment for the joint Sino-Russian project for a wide-bodied, long-range airliner. The holding company has already prepared and submitted its proposal for the 14 systems to the manufacturers: United Aircraft Corporation and COMAC

The holding company has responded to the request for information related to the undercarriage, fire protection system, air conditioning systems, auxiliary power plant, electrical generating system and the onboard inert-gas generation system. The holding company has also offered to develop the hydraulic and fuel systems as well as other systems.

"We are prepared to produce competitive and advanced equipment", stated Maxim Kuzyuk, Technodinamika's Chief Executive Officer. "The current economic situation at the moment is playing right into our hands — our proposal could be more favourable than those from foreign market players."

In his opinion that the manufacturers will select the systems providers in 2016. Our involvement in the widebodied, long-range aircraft project is part of the company's strategy to break into the global market. Technodinamika's analysts consider that the total market volume for components required by the potential aircraft could be as much as RUB 100 billion in the first year, and grow with an annual average rate of 19.5% in the next 5 years.

The memorandum to develop the new aircraft was signed between the Russian and Chinese sides in April 2014. At that moment the new program was spoken of as one of the largest projects of international cooperation in the area of aircraft engineering and high-technologies for both countries. The UAC commented that China's was interested in developing no less than 1000 such aircraft.

Su-35 fighters for China

United Instrument Manufacturing Corporation (UIMC) will deliver communication systems to China for its military airfields and will also equip the super-maneuverable Su-35 fighters to be delivered t o the Chinese Air Force with modern communication equipment. The systems enable secure communications resistant to interference and are integrated into a single network for tactical aviation

"Russia and China signed a major contract for the purchase of the Su-35 multipurpose fighters. The S-108 updated communications system, which is part of the fighter's equipment, facilitates the inclusion of these aircraft in automated military control systems," said Sergey Skokov, Deputy CEO of UIMC. "While working in anti-interference mode, the system facilitates information exchange between all communication systems used by the Air Force."

He said that, compared to the previous generation of communications equipment, the new system has a greater radio bandwidth, an increased number of concurrent data links, a reduced delivery time, and greater accuracy in receiving messages while fending off electronic countermeasures.

In addition, the S-108 system can relay communication signals between ground control and aircraft to perform combat missions.

Russian equipment is required to control aircraft produced by Sukhoi. Therefore, UIMC is providing Chinese military airfields with the NKVS-27 ground-based system, which is designed for communication with frontline aircraft and other types of aircraft.

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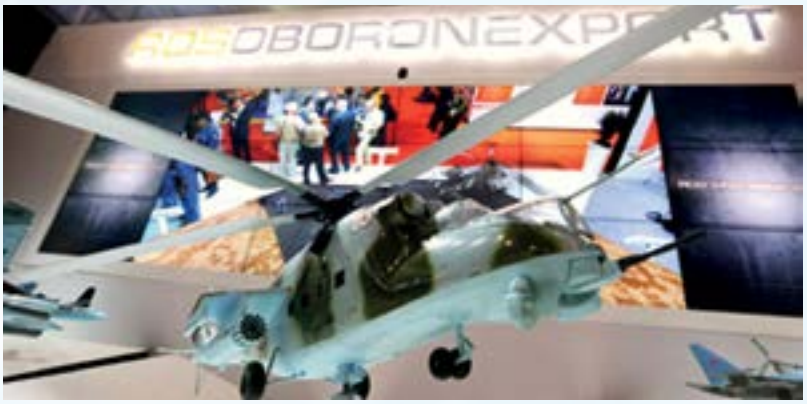
"The system organizes networks and communication channels, primarily for tactical aircraft such as the Su-27SKM, Su-30MK2, Su-35, and other aircraft," said Sergey Skokov. "It has a functional command post and performs automated control commands, transmits commands to higher levels of management, and monitors and records processes carried out in performing flight missions. The NKVS-27 enables multi-channel voice and data communication with the aircraft across all modes of their combat use and at a distance of up to 1,500 km. "

The export of this Polyot RPC product is being carried out as part of Rosoboronexport's comprehensive supply of aviation equipment to China.

In November, Rostec Corporation CEO Sergey Chemezov announced that Russia and China had signed a major contract for the purchase of the Su-35 multipurpose fighters. In this regard, the Chinese military has become the first foreign customer to purchase these airplanes; previously only the Russian Air Force operated them.

Dubai Airshow: Russian equipment in the spotlight

The International Aviation Salon Dubai Airshow-2015 has concluded in the United Arab Emirates.
The airshow testified to the fact that many Middle Eastern countries are interested in products from the Russian military-industrial complex. The Mi-35 and Su-35 aircraft, as well as the S-400 air defense systems, attracted particular attention



Rostec Corporation served as the organizer of the united Russian exposition at the exhibition. Alexander Mikheev, CEO of Russian Helicopters, led the united delegation from Rostec Corporation.

Russian defense industry products attracted the attention of representatives from Egypt, the UAE, Indonesia, Brazil, Pakistan, Saudi Arabia, Bahrain, and other countries.

In particular, Saudi Arabia expressed interest in the S-400 air defense systems. According to Sergey Chemezov, negotiations for the supply of Russian air defense systems are underway with Egypt, though they are interested in purchasing Buk and Antey-2500 systems.

Anatoly Isaikin, CEO of Rosoboronexport, noted that the Middle East is a particularly promising market for Russian arms exports. According to him, the Gulf countries, including the UAE, are examining and evaluating whose technology best matches the needs of their armed forces, whether American, European, or Russian. Rosoboronexport hopes that a decision will be made in favor of domestic Russian technology.

During the Dubai Airshow-2015, it came out that Russia was discussing the possibility of delivering the latest Su-35 fighter jets to the United Arab Emirates.

"The Su-35 exhibit has been presented very well here, and we are now negotiating with the Emirates for the delivery of these aircraft," said Sergey Chemezov after visiting the Rosoboronexport stand, as quoted by RIA Novosti.

China and Brazil are also considering the possibility of acquiring Su-35 jets. According to Viktor Kladov, Rostec's Director for International Cooperation, Indonesia has already decided to utilize these fighter jets.

During the Dubai Airshow, the holding company Russian Helicopters announced its preparedness to equip a service center for civilian helicopters in Iran.

"A roadmap has been agreed upon for the creation of a large-scale center for the service and capital repairs of Mi-17 helicopters," said Alexander Shcherbinin, Deputy CEO of the company.

Negotiations are already underway for the opening of service centers in Cuba and Pakistan, where the Russian Mi-35 helicopters will begin operating in early 2016.

Bahrain has also expressed interest in the helicopters. A Bahraini delegation visited the Rosoboronexport stand and discussed with representatives the technical characteristics of the helicopters and received a comprehensive consultation about their technical characteristics and combat use. In general, the Bahraini representatives expressed their desire to continue these conversations in the future.

During the Dubai Airshow, Russian Helicopters also held talks with a delegation from the Belarusian Ministry of Defense on fulfilling a contract for the supply of 12 Mi-8MTV-5 military transport helicopters.

The airshow demonstrated a growing demand from foreign customers for Russian avionics. Igor Nasenkov, First Deputy CEO of KRET, reported that the President-S onboard defense system could soon be delivered to Algeria and Egypt.

In addition, Sergey Chemezov said that Russia might supply Egypt with equipment and Ka-52K helicopters for the French Mistral ships. There has been no official request from Cairo in this regard, though Moscow is ready to consider it when it comes.

The Dubai Airshow 2015 took place from November 8-12. A total of 23 Russian companies took part in the exhibition and presented 200 models of unique military equipment.

Russia on Expo 2015

During a bilateral meeting with Vladimir Putin on the sidelines of the G20 summit, Renzi Matteo expressed his high appreciation of Russia's involvement in the World Universal Exposition Expo 2015 in Milan

"Thank you once again for your country's contribution to EXPO 2015. The Russian pavilion has been visited by about four million people and the most important thing is that one of the visitors was the President of the Russian Federation. I remember us visiting together the Russian pavilion and being able to sample the most exquisite dishes of Russian cuisine," remarked Matteo Renzi.

For his part, Vladimir Putin complimented the President of the Italian Council of Ministers on the successful completion of EXPO 2015, emphasizing that the exhibition has attracted over 21 million visitors.

Please be reminded that the Russian pavilion has been set up by the professional team from RT–EXPO, a subsidiary of Rostec State Corporation. The VIP guests of EXPO 2015 did justice to architectural designs and a diversity of national cuisine represented in the pavilion as well as a myriad of interactive elements integrated into the general design concept of the pavilion covering 3260 sq. m.

EXPO 2015 is an international event dedicated to the food security of human population and the health of the planet. The catch phrase 'Food for the Planet — Energy for Life' became the exhibition's motto. Each event, show or exposition included educational input guiding people to make an informed choice in favor of environmental friendliness in food production or consumption.

The Russian exposition went with its own motto: 'We are Growing Food for Peace — We are Producing for Future', which accentuated the huge resource potential and preparedness of the country to ensure food security for the benefit of people all over the world.

The exposition organizers tried to give accounts of Russian scientists, riches and a diversity of natural resources in the country and also of a wide variety of cultural traditions of ethnicities populating its territory.

The pavilion also boasted several installations. One of them was 'Water Tsar': a plant evoking images of a chemical laboratory that 'produced' traditional Russian beverages such as kvas (fermented grain drink), uzvar (fruit kompot), fruit drink, Tarhun (a tarragon flavored lemonade), etc. Visitors to the Russian exposition showed a keen interest in the 'open kitchen' where cooks from different regions of Russia prepared original national dishes. Visitors to the pavilion could join master classes and taste Russian food.

Presentation in Thailand

Rosoboronexport had presented a wide range of hardware for all services of the armed forces and its integrated national security projects at the Asian International Defense & Security 2015 Exhibition & Conference in Bangkok

"Our efforts were focused on the expansion of cooperation with all the countries in Southeast Asia, including those which had been traditionally working with Western manufacturers. Russian weapons were strongly competitive, effective and fully met the needs of the region. In addition, Rosoboronexport was ready for the broadest possible cooperation with local producers, joint and licensed production, and close science and technology cooperation. That fully met the interests of many our partners to establish their own high-tech defense industry," said Victor Brakunov, head of Rosoboronexport's external relations department, who leaded the Company's delegation at the exhibition.

Keen interest among our foreign partners was expected in Yak-130 combat trainer aircraft, Mi-17-type attack and military transport helicopters, T-90S tanks, BTR-80A armored personnel carriers, a police version of the Tigr armored motor vehicle, BMP-3 infantry fighting vehicle, a wide range of small arms and naval equipment, including Gepard 3.9-class and Project 11356 frigates, Project 21632 Tornado-class corvettes, and Amur-1650-class submarines.Rosoboronexport expected greater attention to almost the entire export lineup of Russian air defenses, in particular to the Buk-M2E and Tor-M2 SAM systems, Pantsir-S1 air defense missile/gun system and Igla-S MANPADS.

At the exhibition, Rosoboronexport presented its Integrated Safety and Security of Major Administrative Entities, Critical Facilities and National Frontiers project to foreign customers. Ten type detailed integrated security projects (for protecting borders, ports and coastal areas, providing security of cities and critical industrial facilities, holding mass sports events, etc) had been developed based on an assessment of existing threats. Such systems were designed to establish a common information space, coordinate and control the activities of various law enforcement agencies and special services. That would make the fight against crime, terrorism, mass unrest, and illegal migration more effective and enable quick response to emergencies.

At Defense & Security 2015, Rosoboronexport held substantive talks with its key partners in Southeast Asia, as well as discussed the prospects for expanding military-technical cooperation with new partners.

Military-technical cooperation with Thailand began in 2009 with the deliveries of Kalashnikov assault rifles for the police. Later, contracts for the purchase of Mi-17V-5 helicopters and Igla-S MANPADS were signed. In addition, Rosoboronexport has been actively involved in all major tenders for the supply of military products for the Kingdom's armed forces.

Orders portfolio of Rosoboronexport

At the International Exhibition of Arms, Military Equipment and Ammunition RAE-2015 (September 9-12, Nizhny Tagil) Russian weaponry special exporter Rosoboronexport, which belongs to the State Corporation Rostec, was demonstrating latest Russian weapon systems to the delegations from more than 20 countries

"The portfolio of orders for the Russian weapon systems and military equipment of land forces exceeded $12 billion. For the 15 years since Rosoboronexport had been established export turnover in this area had increased tenfold. We steadily competed with the leading manufacturers in the key segments, and could offer integrated, comprehensive solutions for the modernization of weapons and military hardware, as well as equipping the customers' land forces based on a thorough analysis of the needs of our partners in the field of national security" - Deputy Director General of Rosoboronexport Igor Sevastyanov, heading the company's delegation at the exhibition, said.

During the static display and in the course of a large-scale demonstration program of the exhibition in Nizhny Tagil most of Russian export weapon systems and military equipment of the Land Forces were demonstrated. All in all, in this segment Rosoboronexport was promoting more than 700 units of military products in the international market.

Together with manufacturers Rosoboronexport held presentations and provided technical advice on a variety of weapons and equipment - the T-90MS tank, Tiger-M modernized armored car, Kornet-EM anti-tank missile system, T-72 upgraded tank, BMP-3 upgraded infantry fighting vehicle, BMPT-72 armored fighting vehicle, TOS-1A heavy flamethrower system, a new 155-mm MSTA-S self-propelled howitzer, Sprut-SDM light amphibious tank, the 1I37E check and test vehicle.

Foreign delegations were expected to show great interest to the Russian latest development efforts, i.e. the new modernization project of light armored vehicles by the example of the BTR-80 armored personnel carrier, the 57-mm AU-220M automatic weapon system based on the BMP-3 infantry fighting vehicle, and the land forces mobile repair and maintenance center.

At the exhibition, Rosoboronexport was actively participate in expert discussions and roundtables. On September 9, 2015 at 10.00, Deputy Director General of Rosoboronexport Sergei Goreslavsky made a presentation at the panel discussion "Global competition and military-technical cooperation: a systematic approach to the development of the military-industrial complex." On the same day at 16.00 Igor Sevastyanov participated in the extended meeting of the Association "League of assistance to defense enterprises".

Rostec will acquire Singaporean smart fence solutions

At the meeting of the Russian-Singaporean Intergovernmental Commission chaired by Russia's First Deputy Prime Minister Igor Shuvalov and Deputy Prime Minister of the Republic of SingaporeTharman Shanmugaratnam a cooperation agreement was signed between Rostec's holding company SIBER and Singaporean leader in electronics and information and communications technologies — ST Electronics, operating as part of Singapore Technologies

Pursuant to the agreement, ST Electronics will issue to SIBER an exclusive license to distribute its advanced product — the AgilFence perimeter intrusion detection system — in Russia and in the Eurasian Economic Union. Known as the 'smart fence' technology, this system is based on the use of an innovative fiber-optic cable.

This product is in demand both in the Singaporean and global markets. The system has been employed to secure Changi Airport for several years and has repeatedly proved its effectiveness.

The Russian holding company will also obtain a license to complete the assembly of the AgilFence cable in this country under the brand name SIBER as required by the manufacturing procedures in the Singaporean company and shift manufacturing of the process at Rostec's facilities.

"The signing of this agreement means a step change in our cooperation. Now we are in a position to move on from plan discussions and plans to undertaking real projects that will benefit both sides. I am commending our partners from ST Electronics for the joint work and I am positive that AgilFence will open up new opportunities and prospects to us," commented SIBER's Chief Executive Officer Vladimir Kalysh.

Pursuant to the agreement, ST Electronics will provide training to Russian personnel and will furnish all required assistance and support that would enable the holding company to install, maintain and service the system for its clients.

RAE-2015 exhibition demonstrates state-of-the-art military hardware spearheaded by Rosoboronexport

At the International Exhibition of Arms, Military Equipment and Ammunition RAE-2015 (September 9-12, Nizhny Tagil) foreign delegations are expected to demonstrate high interest to the latest R&D efforts of the Russian defense industry enterprises spearheaded and developed with a direct involvement of experts from Rosoboronexport which belongs to the State Corporation Rostec

"We are closely looking at the trends in the international arms market, comprehensively analyze the needs and demands of our partners, the nature of modern conflicts. So we have a clear vision of what our customers need today and will demand in the future. This serves us to make guidelines and recommendations for the developers and manufacturers. Some of the latest models of the land forces military equipment were developed upon the initiative of Rosoboronexport and with a participation of our experts,"- Deputy Director General of Rosoboronexport Igor Sevastyanov, who heads the company's delegation at the exhibition, said.

In particular, the exhibition will unveil the new modernization project of light armored vehicles by the example of the BTR-80 armored personnel carrier (in cooperation with the 81 Armor Repair Plant "81 BTRZ" and CRI "Burevestnik") and the 57-mm AU-220Mautomatic weapon (in cooperation with CRI "Burevestnik").

Thus, a unified set of technical solutions for equipping light armored vehicles (BTR-60/70/80, BMP-1, BRDM-2), which was implemented in the BTR-80 showcase model, can significantly increase firepower (new remotely operated weapon station), protection and survivability (additional protection elements of the external structure and crew compartment), as well ergonomic, performance, and controllability thanks to the advanced digital communications, satellite navigation, surveillance, and air conditioning.

At the exhibition, the 57-mm AU-220M automatic weapon system will be demonstrated at the BMP-3 infantry combat vehicle. This option to upgrade the military equipment is proposed by Rosoboronexport to the countries, which already have in service these Russian vehicles.

The new weapon system can be installed on other armored vehicles and naval equipment of both Russian and foreign production. High performance characteristics of the AU-220Mallow for combating a wide range of armored vehicles and air targets on the battlefield. Equipping the vehicles with this weaponry can greatly increase firepower of the motorized and infantry units.

"Rosoboronexport pays great attention to the modernization and maintenance of previously supplied land forces equipment of the Russian and Soviet production. Our solutions are very effective and economically viable. For many countries this is a real opportunity to significantly improve the combat capability of their armed forces" - Igor Sevastyanov said.

Russian Arms Export to the Asia-Pacific Region

Rostec's Rosoboronexport went to Defense & Security 2015 in Bangkok on 2-5 November 2015 to discuss military and technical cooperation development prospects with delegations from more than 10 countries

"The talks and consultations in Bangkok suggest that Rosoboronexport's comprehensive national security solution for our military and technical cooperation partners is in demand everywhere in the Asia-Pacific region. We intend to pursue this path, offer our partners new sound projects and attractive conditions, including industrial cooperation prospects with deployment of production in their countries being an option," Viktor Brakunov, Rosoboronexport's External Relations Chief and the head of the Russian delegation at Defense & Security 2015, gave his preliminary assessment of the business trip.

Asia-Pacific delegations who visited Rosoboronexport's booth were particularly interested in Russian helicopters and armor equipment, anti-tank and AD weapons, as well as small arms. Other defense products that can benefit forces deployed in UN peacekeeping operations also caught their eye.

The Russian delegation was honored to receive at its booth Thai officials, namely Royal Thai Army Commander Gen. Teeracha Nakwanich, Thai Deputy Defense Minister Gen. Roungrojana Chumrasromrun, as well as Deputy Permanent Defense Secretary Adm. Anuthai Rattarangsi. Other delegations with whom Rosoboronexport's representatives were happy to have talks had come from Bangladesh, Bhutan, India, Indonesia, Cambodia, China, Laos, the Republic of Korea, and Singapore. The delegations from Turkey and Saudi Arabia also visited the booth.

Rosoboronexport's specialists successfully conducted a presentation of the project Comprehensive Security of Large Entities, Critical Installations and State Boundaries that gathered over 40 representatives of various security agencies of Thailand and some other states, including NATO countries. It is noteworthy that several foreign specialists admitted that they had never before come across such an elaborate project of the same scale.

All achievements of the Russian companies at Defense & Security 2015 considered, Russia wants to send its defense industrial complex representatives to the iteration in 2017.

APEC: Towards open and equal cooperation in the interests of development

Vladimir PUTIN

Vladimir Putin's article published in a number of world mass media before the major summit on cooperation in the region became one of key articles about the relation of Russia and the Asian countries in format Asia-Pacific Economic Cooperation

For a long time trade has been the driving force of economic growth in the Asia-Pacific region and other parts of the world. However, as the effect of tariff liberalization started to wear off, it became clear that we need additional agreements covering services, investment, non-tariff barriers, competition policy, and subsidies. Of course, we cannot reach such agreements without complicated negotiations and mutual concessions.

Deeper regional economic integration offers us a possible way out of the current situation. Today, Russia and its close neighbours — Armenia, Belarus, Kazakhstan, and Kyrgyzstan — have taken successful steps to develop the Eurasian Economic Union (EAEU). Our integration project is based on the WTO's universal, transparent principles and is designed from the outset to work together with other countries and their organizations. In May this year, we signed a free trade agreement between the EAEU and Vietnam. Another 40 countries are examining the possibility of signing similar agreements.

One example of responsible and transparent partnership is the agreement to converge our EAEU project with China's Silk Road Economic Belt initiative. This will allow us to resolve a number of bottlenecks in transport infrastructure and procedures for cross-border movement of goods and services. It will also give a big boost to effective integration of the Asia-Pacific economies.

We hope to reach mutually advantageous agreements on traditional and renewable energy sources, emergency and disaster response, food security and agriculture at the Russia-ASEAN summit next year in Sochi.

Overall, the creation of new free

At the national level, Russia continues its efforts to create the most comfortable business climate

This year, we began developing the priority development areas – economic zones offering what for Russia are unprecedented tax and other incentives. A special law was passed on a free port in Vladivostok. We plan to extend this status to other key ports in the Far East. The Far East ports, the Northern Sea Route, and modernization of our mainline railways will all contribute to greater integration with the Asia-Pacific region and create an important infrastructure link between the Asia-Pacific region and Europe.

trade zones will help to create good conditions for liberalizing trade and investment flows in the region. At the same time however, the confidential fashion in which the Trans-Pacific Partnership (TPP) negotiations were conducted is probably not the best way to facilitate sustainable growth in the Asia-Pacific region.

We believe that the strategic road ahead lies not only in increasing the number of free trade zones, but also in joint development and implementation of the best liberalization practices among all APEC members, taking into account each other's positions and interests. In this respect, we should continue our course of bolstering APEC's role as a coordinator of various integration initiatives aimed at developing in the region a common and open market, free of discrimination and bloc-based barriers. Here, effective implementation of the Beijing roadmap for APEC's contribution to establishing an Asia-Pacific free trade zone, approved in Beijing in 2014, is particularly important.

Realizing the APEC countries' development potential will take more than just reaching agreement on the rules of the game for today's trade flows. We need to work out common approaches to development and regulation of the emerging markets that make up the digital technology-based 'new economy'. We need to put in place the institutions and rules that will contribute to development and create new opportunities for our countries' businesspeople to create modern, promising products and high quality jobs.

We need to put in place the institutions and rules that will contribute to development and create new opportunities for our countries' businesspeople to create modern, promising products and high quality jobs.

Russia, for its part, is active in the work of the region's new financial institutions — the New Development Bank BRICS and the Asian Infrastructure Investment Bank. I am sure that their work will help to develop the region and will also help to make the global financial system stronger and more stable.

At the national level, Russia continues its efforts to create the most comfortable business climate. Our efforts have received international appraisal and over the last 4 years, Russia has moved up 69 points in the World Bank's Doing Business rating, from 120th place to 51stplace.

We place great importance on developing the potential of Russia's Far East. This year, we began developing the priority development areas – economic zones offering what for Russia are unprecedented tax and other incentives. A special law was passed on a free port in Vladivostok. We plan to extend this status to other key ports in the Far East. The Far East ports, the Northern Sea Route, and modernization of our mainline railways will all contribute to greater integration with the Asia-Pacific region and create an important infrastructure link between the Asia-Pacific region and Europe.

APEC countries are showing real interest too in Russia's proposals to form a common education space in the region. Today, when the Asia-Pacific region has established itself ever more solidly as part of the world's leading technology centres, it is more relevant than ever to combine our efforts to create big research platforms and centres. Recognizing Russia's sense of initiative in this area, our partners have entrusted our country, together with Peru, the right to preside over the APEC Education Ministerial Meeting, which will take place in Lima in 2016.

Rapid economic growth is not possible without guaranteed energy security in the APEC region and fair and long-term climate regulation. Russia supports APEC's efforts to establish good conditions for investing in the regional energy transport system, develop integrated energy markets, increase the share of eco-friendly and renewable energy sources, and ensure access to low-carbon technologies.

We believe that the strategic road ahead lies not only in increasing the number of free trade zones, but also in joint development and implementation of the best liberalization practices among all APEC members, taking into account each other's positions and interests. In this respect, we should continue our course of bolstering APEC's role as a coordinator of various integration initiatives aimed at developing in the region a common and open market, free of discrimination and bloc-based barriers

The Paris Climate Change Conference will take place soon, in December. This conference will try to reach a global agreement on reducing greenhouse gas emissions. Russia wants to see this work succeed and we have already presented our report on our country's contribution to these efforts.

The scale and diversity of APEC's tasks is very impressive. I believe that we will be successful in resolving these tasks if we keep to the fundamental principles of working together as partners and acting in the interests of our peoples and our efforts to create a united Asia-Pacific family.

/RA&MG/

Alexander FOMIN:

"Russia remains one of the world's top defense products suppliers"

At a recent meeting held in Sochi between Russian President Vladimir Putin and Kuwaiti Emir Sabah Al-Ahmad Al-Sabah it has been emphasized that mutual goods exchange between the two countries is growing; besides, a considerable share in export prospects is made of Russian defense products well-known in the region, which have shown themselves to advantage also in military conflicts. Monitoring and supervision over military and technical cooperation between the Russian Federation and other countries is performed by Federal Service for Military-Technical Cooperation (FSMTC of Russia)

Mas to military and technical cooperation in this region and in whole Asia. Military and technical cooperation between our two countries goes deep. It began in 1978 and advanced in a rather active manner. Thus, back then our country provided Kuwait with about 700 'Strela' portable antiaircraft missile systems and twenty 'Osa' air defense missile systems.

Extending cooperation between Russia and Kuwait is spoken by the Memorandum of military and technical cooperation between 'Rosoboronexport' and Defense Ministry of Kuwait undersigned in November this year, which shows Kuwaiti military's profound interest towards purchasing Russian military equipment. In particular, Kuwait is interested in Russian battle aircraft and air defense systems. More details of types and purchases will go public later. So far only growing interest can be observed. Besides, much attention has been paid to creation of heavy infantry fighting vehicle (IFV) based on Enigma IFV developed by UAE and Russian AU-220M weapon station equipped with 57mm gun.

In his interview for Russian Industrial Weekly newspaper Alexander Fomin, Director of FSMTC of Russia has described the extent to which the current stage of military and technical cooperation with other countries is significant. Among other things he said the following.

"Today the situation of world armament and military equipment market depends on many factors. These are ongoing global economic crisis, complex military and political situation in Middle East and North Africa, stepping up of military production competitors which include first of all the USA, Germany and France.

We should recognize stepping up of such armament exporters as China, Republic of Korea, Israel and Turkey as well as entry of new ambitious players like Japan and Republic of South Africa. It is needless to say that development of military and techni-

cal cooperation between Russia and other countries is to some extent influenced by so-called 'anti-Russian sanctions'. Nevertheless, Russia is still one of the largest global defense suppliers and it is keeping intensive military and technical cooperation underway.

Indian Air Force and Navy are armed with many Russian (Soviet) aviation equipment such as Su-30MKI, MiG-21, MiG-23, MiG-29 ground and ship-based fighters, Il-76 transport aircraft and Il-78 tankers, naval Tu-142M and Il-38, Mi-17, Mi-26, Ka-28 and Ka-31 helicopters. The mentioned aircraft are going to be used by Air Force and Navy of India for next decades and should be constantly maintained by Russia.

Nowadays India is much interested in establishing production of Ka-226T helicopters in India. There are negotiations underway as to cooperation conditions under this project. There is a possibility of additional lots of Mi-17V-5 helicopters to be delivered and increasing the number of Su-30MKI planes being produced under license in India. All this makes us enthusiastic in Russian and Indian cooperation in terms of battle aircraft.

Main areas of cooperation with Malaysia in this regard include after-sale service of Su-30MKM aircraft. In 2012 a maintenance facility was established under the delivery contract. Besides, there are efforts to promote additional lot of Su-30MKM's to Malaysian market. Currently Malaysia is considering proposals for upgrading MiG-29 planes delivered before.

Military and technical cooperation between Russia and China as to battle aircraft is also promising".

Major areas of FSMTC of Russia activities shall be:

- *To perform control and supervision functions in the area of military-technical cooperation in compliance with laws of the Russian Federation;*
- *To participate jointly with other federal government authorities in elaboration of state policy in the area of military-technical cooperation and submit in the established manner relevant proposals to the President of the Russian Federation, the Government of the Russian Federation, and Defense Ministry of the Russian Federation;*
- *To ensure jointly with other federal government authorities implementation of key state policy guidelines in the area of military-technical cooperation as set by the President of the Russian Federation; and Within its competence and jointly with other federal government authorities, to implement state regulations in the area of military-technical cooperation.*

Answering the question of joint defense production to be established by Russia in partner countries, Director of FSVTS emphasized as follows:

"Decisions to establish joint defense-oriented enterprises are made by the President of the Russian Federation and the Government of the Russian Federation. Our Federal Service is responsible for implementing the mentioned decisions and monitoring.

In this regard I would like to state that while the decision to establish a joint enterprise is being prepared, the issue is to be addressed comprehensively in all departments and agencies including FSMTC of Russia, Russian Defense Ministry, and Ministry of Foreign Affairs, Ministry of Industry and Trade and other agencies in order to avoid losses for the Russian Federation. Besides, all factors like political, economic, military and technological ones should be taken into account. Targeted decisions are made as to each separate joint enterprise. Joint development and production are cross-pollinating and allow consolidating and developing technological potential of Russia as well as facilitate future innovation-driven growth". /RA&MG/

In conformity with laws of the Russian Federation, FSMTC of Russia shall perform control and supervision functions relating to:

- *Compliance, of activities in the field of military-technical cooperation of federal government authorities, government authorities of the Russian Federation constituencies, and Russian organizations empowered in the established manner to carry out foreign trade activities regarding military purpose products, corporate developers and manufacturers of military purpose products, other legal entities, officials and individuals, with legal acts and regulations of the Russian Federation and key state policy guidelines in the field of military-technical cooperation, requirements of the Russian Federation laws on export control over procurement of military purpose products;*
- *Implementation of underlying state policy principles in the field of military-technical cooperation including state monopoly;*
- *Efficient functioning of state regulatory system in the field of military-technical cooperation;*
- *Fulfillment of international treaties of the Russian Federation in the field of military-technical cooperation;*
- *Activities in the field of military-technical cooperation of representative offices of military-technical cooperation–affiliated entities in the Russian Federation and foreign states, as well as those of other organizations;*
- *Marketing, advertising, and exhibition activities in the field of military-technical cooperation;*
- *Efficient application of funds allocated from the federal budget to finance activities in the field of military-technical cooperation, as well as efficient use of federal property by military-technical cooperation–affiliated entities;*
- *Level of foreign trade prices for export and import military purpose products with due regard to protection of economic interests of the Russian Federation;*
- *Level of local prices for military purpose products to be funded out of the federal budget, and supplied to foreign customers under international treaties of the Russian Federation.*

One day of Russia's Armed Forces actions in Syria

President of Russia Vladimir Putin visited the National Defence Control Centre where he held a meeting to discuss the actions of Russia's Aerospace Forces in the Syrian Arab Republic. The Commander-in-Chief heard reports from Defence Minister Sergei Shoigu, Chief of the General Staff Valery Gerasimov and commanders of the different branches of the armed forces on the operation. The President issued instructions to establish contact with the French naval group to carry out joint actions against terrorists

Sergei SHOIGU,
Defence Minister of Russia:

Comrade Commander-in-Chief, In accordance with the task you have set of enhancing combat action by our aviation against terrorist groups, as part of today's airborne mission, we delivered the first massive air raid on ISIS facilities on the Syrian territory.

The number of missions has been doubled, which makes it possible to deliver powerful and precise strikes against ISIS targets across Syria's entire territory. To support airstrikes against militant groups delivered by the operational and tactical aviation performing missions from the Khmeimim airfield, long-range Tu-160, Tu-95MS and Tu-22M3 strategic bombers have been brought into the operation from the Russian territory. Today between 5 and 5.30 am Moscow time, twelve Tu-22 long-range strategic bombers delivered air strikes on ISIS positions in Raqqah and Deir ez-Zor.

From 9 to 9.40 am, 34 air-launched cruise missiles were fired from Tu-160 and Tu-95MC strategic missile carriers to hit terrorist targets in Aleppo and Idlib. All strikes are delivered at previously developed targets. Overall, for the first day of the air operation we have planned 127 combat missions to hit 266 terrorist positions.

By now we have carried out 82 flights, destroying 140 terrorist positions. The operation continues. Further massive air raids will be made in accordance with the air operation plan submitted to you. We have enough manpower and materiel.

Valery GERASIMOV,
Chief of the General Staff:

Comrade Commander-in-Chief, pursuant to your instructions, since September 30, our Armed Forces' combat aviation has been carrying out air strikes targeting inter-

national terrorist organisations in Syria.

Over these 48 days, the Russian aviation group has made 2,289 sorties and delivered 4,111 missile strikes on the terrorists' main infrastructure facilities, munitions depots and manpower locations.

In the course of combat action, 562 command centres have been destroyed, along with 64 terrorist training camps, 54 arms and ammunition production plants and other facilities.

The actions by Russian aviation have made it possible for the Syrian Armed Forces to take the offensive along the entire frontline in the provinces of Aleppo, Lattakia, Idlib, Homs and Damascus, liberating large territories from the terrorists.

In the north, in the province of Aleppo, the Syrian army has liberated 40 residential areas, with the government forces deblocking the Kweiris airbase and currently expanding the security zone around the airport.

The offensive at Idlib is developing successfully: Syrian troops are currently conducting active offensive operations 20–30 km from the city.

In the coastal province of Lattakia, militants have been chased out of 12 residential areas. Government forces and militia assault teams are involved in fierce fighting for the city of Salma.

On the divide between Gbana and Gmam, they have managed to secure a number of tactical heights and residential areas. Despite the militants' heavy resistance, the Syrian troops continue their advance.

In the centre of the country, an offensive by government troops and militia units resulted in the capture of the village of Haddad and the blockade of the militants in the town of Mhin.

The Syrian army continues its offensive towards Palmira. Since the beginning of active operations, the assault teams have advanced up to 4 km, blocking terrorists in the village of Maksam, and are currently fighting for the high points on the city's fringes.

Near Damascus, fierce city fighting continues to liberate the districts of Jaubar and Eastern Guta from the militants. For the first time in the four years of combat action, the Syrian army has liberated 80 residential areas, taking control over a territory of more than 500 square kilometres.

Acting on your orders to raise the number of strikes on ISIS targets and other extremist organisations, the General Headquarters developed the plan of an air operation. Along with increasing the intensity of sorties from the Khmeimim airbase in Syria, the plan envisages using an additional 25 long-range aircraft, 8 SU-34 strike fighters and 4 SU-27SM fighters from the territory of the Russian Federation.

To increase the pace of hits at enemy facilities and improve strike precision, we continue reconnaissance of the Middle East territory. We are using 10 imagery and radio electronic reconnaissance satellites, including those of non-military nature. We have retargeted and adjusted the orbits of a number of satellites, which makes it possible to cover Syrian territory at the required pace. We are planning to further strengthen the orbital grouping by using reserve space vehicles and launching new ones.

Today, in the course of the first massive airstrike, 34 air-launched long-range cruise missiles hit 14 important terrorist positions, including illegal armed groups' command centres that coordinate the actions of ISIS militants in the provinces of Idlib and Aleppo; major munitions and other materials depots in the northwest of Syria set up in protected hide-outs, militant training camps where newcomers to the terrorist organisations were trained, including suicide bombers; three major plants producing explosives, suicide bombers' belts and unguided missiles.

Today, the aviation group deployed at Kheimim airfield performed 65 missions of the 98 planned. The airstrikes resulted in destruction of 6 command posts, 8 munitions depots, 12 terrorist training camps, 4 plants producing landmines and missiles, and 6 fuel storage facilities. SU-34 aircraft hit 2 fuel convoys, destroying about 50 vehicles. Considering the earlier strikes on vehicles transporting petroleum products (a total of 410) and individual infrastructure sites, the militants' capabilities to illegally export energy resources have been significantly reduced.

The air operation is being controlled from the Russian National Defence Control Centre through long-range aviation control points and aviation groups in Syria. We notified air force commanders of the United States and other coalition countries of the strikes at a reasonable time. We continue hitting terrorist positions in line with the approved plan. All the tasks you have set us, Comrade Commander-in-Chief, will be achieved.

Anatoly ZHIKHAREV,
Commander of Strategic Aviation:

As of today, our strategic bombers set on a mission to hit ISIS positions in Syria. To perform this mission, we are using all types of strike aircraft at our disposal: TU-160 and TU-95MS strategic missile carriers and TU-22M3 strategic bombers. Their crews were instructed to hit positions, and they are acting in full compliance with the plan of the first massive air strike.

After the mission, the TU-160 and TU-95MS strategic missile carriers landed at their home fields for maintenance, preparation for new flights and recorder analysis. A reinforced TU-22M3 strategic bombers squadron conducts two group air strikes a day from the airfield in Mozdok, targeting ISIS positions in eastern Syria – the provinces of Deir ez-Zor and Raqqa. During just one mission that lasted 5 hour 20 minute, the TU-22M3 bombers cover 4,510 km in distance. The TU-160 and TU-95MS bombers covered 6,566 km in the course of their missions that lasted 8 hours 20 minutes and 9 hours 30 minutes accordingly.

The rocket missile attacks have destroyed 7 munitions depots and personnel locations, 5 major ammunition storage facilities and 5 terrorist infrastructure facilities.

Comrade Commander-in-Chief, the moral and psychological condition, professional qualifications of aircrews and technical personnel, the condition of aviation equipment and air weapons and fuel stock make it possible to perform all the tasks set by the strategic aviation command as part of the air operation with precision and in a timely fashion.

Oleg KRIVOROG,
Captain First Rank:

As part of the naval task force in the eastern Mediterranean, the Moskva missile cruiser is ensuring combat stability of ships and vessels delivering cargos to the Syrian Arab Republic, covering from the sea the deployment location of the Russian air strike group and point of unloading for sea cargos.

On the current mission, the ship has covered 10,300 nautical miles. We have convoyed and covered 27 vessels carrying cargo to the Syrian Arab Republic.

We have located and identified the nature of actions of 53 vessels and 2,375 flights by foreign Armed Forces conducting combat operations in the eastern Mediterranean.

Currently, the Moskva missile cruiser is controlling air, sea and undersea situation in the assigned area to create favorable conditions for actions by Russian armed forces in the Syrian Arab Republic.

The cruiser's armaments and equipment are in full readiness, the personnel are in good health, and morale is high.

Anatoly KONOVALOV,
Lieutenant General:

In line with your decision, today a group of TU-22M3 strategic bombers delivered a group night strike from the Mozdok airfield on six ISIS targets in Syria.

After landing, they prepared for a new mission. At 2 pm, the crews took off to carry out another air strike. In the period of time from 4.30 pm until 5 pm, they hit 6 targets. Currently, the crews are on their way to their base.

The crews and equipment are functioning properly. We communicate with the crews throughout the entire mission. Control is stable.

Comrade Commander-in-Chief, the task group personnel are ready to perform your tasks to ensure the security of the Russian Federation and protect its citizens. **/RA&MG/**

Russian Export Center

At present, Russian economic policy measures are more focused on the development of full-cycle local production and production with high added value. Speaking at the recent session of the State Council devoted to import substitution held in Nizhniy Tagil President of Russia Vladimir Putin noted: "The goal is not to substitute the imported goods with domestically produced ones in one way or another. Support should be provided to projects able to compete with foreign analogues on equal terms – both by quality, and by price"

The sales appeal on the world market is one of the key factors of long-term economic growth. But competition on foreign markets is not just a comparison of price and qualitative characteristics – it is also a competition of export support systems, which governments offer to non-raw-materials exporters.

Today, many agencies, development institutions and organizations – Ministry of Economy, Ministry of Industry and Trade, Finance Ministry, FAS, FCS, Vnesheconombank and others — are involved in activity aimed at supporting export in Russia. However an exporter lacked a single counterpart who would become a starting point for Russian manufacturers striving to reach the global market. For that reason, the Government of the Russian Federation decided to establish the Russian Export Center (REC) to operate in a single window format to support producers and provide their access to the most complete set of services for supporting export activity.

The Center's range of services development was based on a principle of conformity to the stages of export project life cycle. Otherwise, it is an arrangement of routing and support of requests submitted to governmental structures, rendering organizational and consulting, training and informing, and financial services. The basic idea of the Center is to combine the state opportunities with the cli-

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(Vladimir PUTIN)

The Center's range of services

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ent-oriented business approach. Such approach will promote creation of favorable environment for the development of Russian export. The Center has already started to work both with experienced and with starting exporters independently on their volume and industrial specialization.

The financial block of REC is represented by the tools of Vnesheconombank Group. In the nearest future, RECIIA and Roseximbank will be moved under REC corporate management and thus the financial "wing" of support is to be created. Integration of REC, RECIIA and Roseximbank will help, first of all, to exclude duplication of functions, secondly, to reduce the volume of document circulation, and thirdly, to save the time of all participants of export activity. In order to establish efficient interaction of REC with RECIIA and Roseximbank, a special end-to-end business process will be arranged, while all the clients who have addressed REC, RECIIA and Roseximbank, will be included into an integrated client base.

In order to implement non-financial measures of rendering assistance to exporters, the Center will cooperate with partners and service providers in the key spheres of interaction. A model of obtaining the state support and the scheme of payment for services rendered through outsourcing will be developed. Potential spheres of interaction shall be: protection of intellectual property, legal support (including abroad), and logistics. Skolkovo Foundation, RBC and the Scientific and Technological Valley of the Moscow State University could be potential partners of the Center.

In spite of the fact that REC operates for only few months, it has already succeeded to buildup a portfolio of more than 100 projects in automotive, agricultural, aviation, mechanical engineering sectors, the sectors of nanotechnologies and microelectronics, etc.

The Russian Export Center has chosen a way of direct communications with business. Meetings with representatives of industrial organizations and individual exporters are arranged on a regular basis. One of REC's goals is the accumulation of market information and transmitting business urgent requests to governmental structures. In order to find the most demanded requests it is planned to arrange regular quantitative and qualitative assessment of export environment. The first research project is devoted to the transportation and logistics sphere of export activity. REC engages the widest possible audience of businessmen in its studies, which allows it to involve, on the one hand, new clients to work with REC, and on the other hand, to use the accumulated base to continue research in the future. Such an approach, together with regularly arranged studies, helps to monitor the dynamics of export support system development, and to obtain digital data of the results of work of all federal executive authorities involved in the support of export, and to elaborate recommendations for their further works in this sphere.

Besides, REC plans to carry out active educational activity. Thus, the first major educational project of the Russian Export Center will start in spring of 2016. It is not just a plan of regional seminars or a series of webinars, but it is a full-fledged systemic software product, which will include two key opportunities for the regions:

- Opportunity for starting exporters to obtain knowledge needed to start their export activity.
- Opportunity of professional development for employees engaged in regional infrastructure of export support.

Mini-MBA format was chosen for the program, which stipulates a practice-focused approach. Advisers competent in various spheres are engaged to develop and implement the programs, which gives an opportunity to create a really high-quality educational product. Training will be arranged in the full-time and remote modes, which will help to cover many regions within a short time period. Currently the Center is selecting pilot regions for the project approbation.

The urgency of the educational project was stipulated by the fact that one of the main challenges the enterprises faced in their export activity was the lack of knowledge in the field of foreign trade activities – it was especially true for the regional companies. Regular surveys of businessmen confirmed high demand for and motivation to training. **/RA&MG/**

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Export of technologies

Clever decisions from Russia with love

Sandra DEZA

As innovations and hi-tech production tend to bring more economic benefits and influence, Russia is working on increasing exports of non-raw material sector, including technological export and transfers. And the current economic situation in Russia with sanctions, restricted financial support from European banks and weak ruble only comes in flavor for Russian companies opening opportunities to fulfill their potential abroad. So among exporting companies there are those who aimed at foreign markets from the start; companies that manufacture unique advanced technology products with no competitors in any part of the world; and companies that take advantage of the current economic situation to expand their markets

ENERGOPROM Group has aimed at export from the start because there is no demand for their technology in Russia. Now the company is a leading Russian manufacturer of hi-tech electrode, cathode and other graphite and carbon-based products. The Group's products are widely used in aluminum, steel, silicon, ferroalloys, chemical, nuclear, engineering, aerospace, electronics and power industries. The company exports more than 50 per cent of its output covering more than 60 countries around the world. The Group has its own R&D Center developing projects for the industrial production of isostatic graphite. Most of the Group's products will be exported because in Russia there are still almost no consumers of isostatic graphite, the market is still very small.

Research and Development

Not only the Russian companies are ready to export but also foreign potential consumers and suppliers of the technologies are looking at Russia as an attractive market.

Center "Transkor-K" is one of the exporting companies with unique products to offer the world. The company specializes in the area of pipeline systems non-destructive testing. One of the company's biggest projects was development of submerged and subterranean pipeline survey technology with Malaysian oil company PETRONAS. In 10 year-old history the company has successfully worked in Uzbekistan, Ukraine, Syria, Argentina, Brazil, Colombia, Mexico, Croatia, Saudi Arabia, Malaysia, Indonesia, China, UK and the USA.

Moreover, startups are also becoming more and more interested in technology export and transfers.

First of all, government has been increasing its support for innovative small and medium-sized businesses according to the state strategy for innovative and technological development. The infrastructure is growing, more and more industrial parks, incubators and funds are opened across Russia, including specialized and narrowly focused technology parks

Konstantin Semenko, expert on legal support and mediation of technology transfer, says that Russian companies started to realize that innovations bring economic growth and, thus, more and more often Russian companies turn to him for consultation and support of technology transfers to foreign countries. "Not only large corporations but also startup projects in Skolkovo seek international expansion and expect to gain 20 % of income from abroad" – he says, "The economical situation is in fact promising."

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First of all, government has been increasing its support for innovative small and medium-sized businesses according to the state strategy for innovative and technological development. The infrastructure is growing, more and more industrial parks, incubators and funds are opened across Russia, including specialized and narrowly focused technology parks.

State Corporations such as "Rosnano" and major Foundations, including the Foundation for Assistance to Small Innovative Enterprises in Science and Technology and the Skolkovo Foundation presents grants and provide the infrastructure for R&D projects. Due to government support of R&D and IPR sectors are developing intensively.

Secondly, Russia has a vast intellectual property reserve. Large part

of the potential dates back to the Soviet Period, when science and technology industry flourished. And now all the intellectual property from that time has formed in a decent way. Other part of the intellectual property reserve comes from actively developing R&D centers.

In the Skolkovo Foundation there is a project, "Intersoft Eurasia", which is developing portable dosimeters that are compatible with modern mobile devices. The company has received patents in China and Japan, which opens the company markets in the Asia-Pacific region.

Furthermore, one should not underestimate the benefits for foreign suppliers and partners of cooperation with Russian exporters. Such as the price-performance ratio, for example.

Production Company CJSC "Svetlana-Optoelectronics" produces lighting products based on LEDs for over 10 years applying its own design and technology. Their products meet international quality standards ISO. Though the price is not as high as the European products and not as cheap as the mass Chinese products which are twice less energy-effective than the European. Thus the quality of the Russian company's production is at the same level as Europe's which is confirmed by European certificate, but the price segment is between Europe and Asia.

For example, Russia's state-owned United Shipbuilding Corporation not only exports licenses on submarine technology to India, but also creates joint ventures in military high-technology sector. And at the same time, United Engine Building Corporation, another state company, delivered to India more than 100 technology kits for the production of fighter jet engines on its territory. This means that the company should analyze and assess the most effective and cost-effective process suitable for it

However, having an idea is not enough, knowing how to commercialize it, how to earn money on it – is the key. As R&D centers and institutes thrive with ideas, most scientists lack common business knowledge. In foundations they can be offered to make a practical use of their research and start a business, but nobody will explain to them how it should be done.

"We collaborate closely with scientific society, industry and investors, and we help assess the practical potential of scientific research or technology and its commercial value". – Konstantin says.

"And when you know the potential value of your innovation you realize the importance of guarantee of intellectual property rights for success," - he says. "It is a major requirement for successful agreement in technology transfer. And the cost of IPR is usually quite small in comparison with the capital investments and risks that are involved."

"There are well-developed internationally recognized mechanisms of sharing IPR. But avoiding and not securing your rights on the intel-

lectual property is an internationally recognized absurdity."

That's where mediators like Konstantin are needed. Businessmen with legal knowledge, and lawyers with business knowledge and experience.

Konstantin emphasizes the importance of mediators with legal and patent specialty: "Filing for patents issued for practical processes of the intellectual property and making sure that technology transfer or export agreements satisfy both Russian researchers and developers

and foreign suppliers and partners should be by default part of the preparation for export."

Another key point that needs thorough analysis is the process of the technological transfer. It can involve licensing agreements or technology leasing or setting up joint ventures and partnerships or engineering or spin-outs or technical support services or personnel exchange or other. Each process depends on the company's goals and specific features of the entering markets.

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"There are a growing number of Russian IT, biotechnology and hi-tech manufacturers that have unique products to offer the world." – he says. "And

"And we also work with foreign countries and know how consumer mindset differs between the countries." – Konstantin says. "

Starting partnerships and exporting to foreign markets is not possible to form unilaterally, it is a two-way operation joint by mediators, including lawyers, patent specialists and marketing specialists.

Assessing the risks and advantages of entering certain markets, choosing the most effective method of transfer and providing knowledge about consumer and supplier mindset of a specific country are few of the components of the chain of actions.

"We seek to foster the growth of high-tech export and technological development. We take advantage of our close collaborations with both business and scientific societies to develop intellectual property, transfer technology and support partnerships with foreign countries." **/RA&MG/**

The best aircraft

Russia is increasingly adding to world fleets of military and civil aircraft

The importance of both military and civil aircraft is growing every year. There is a steady growth in demand for aircraft. Besides, the criteria of importance are increasingly reliability and prices. In this regard the supply of Russian aircraft to international markets is inceasing. These aircraft feature reliability, up-to-date systems and well-balanced prices both for planes themselves and their maintenance. According to experts, Russian aircraft are more attractive in world markets thanks to life cycle cost.

UAC-branded

Russian 'United Aircraft Corporation' (UAC), which under one company represents the most well-known Russian aviation brands 'Sukhoi', 'MiG', 'Tupolev', 'Yakovlev' and others, is today among the world's largest manufacturers and suppliers of aircraft, both military and civil.

Thanks to Corporation's success in international business activity among other things UAC is in the 'Forbes'-rated list of the world's biggest public companies. UAC's revenues have grown over 20% on annual basis. Superjet 100 civil airliner, Su-30 and MiG-29 fighters, Yak-130 operational trainer are among the most popular aircraft exported by UAC.

Undersigning of a contract by Russia and China to supply 24 multifunctional Su-35 fighters has become one of the latest events this year. China turned out to be the first country to have a contract with Russia with regard to state-of-the-art Su-35

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fighter. According to experts about 300 Su fighters will be exported by Russia in 2011-2018. Thus, the family of these multifunctional fighters has been steadily heading the list in the world leaving behind other brands including Boeing-made aircraft. Thus, in 2011-2014 Su aircraft were the first in terms of quantity. Within four years customers received 139 planes. Lockheed Martin delivered 89 fighters and Boeing – 60 only.

UAC places its stake on supplying military aircraft. Besides, many countries are discussing the necessity of renewal of their aircraft fleets . Unique Yak-130 combat trainer already supplied and being supplied to many states is also among the most popular in world markets. This plane is second to none in its class.

The contracts to deliver fighters to some Asia-Pacific states which include among others the biggest ones like India, China and Malaysia are successfully underway.

Civil aircraft

Not only military aircraft are exported by Russia. There has been quite a success with civil aircraft in which regard UAC is making extended plans. Among Russian civil aircraft Sukhoi Superjet 100 regional jet of the new generation is the most popular in foreign markets. The aircraft combines new aircraft engineering technologies, passenger and crew comfort, significant economic advantages for airlines, proper environmental specifications.

The key advantage of Sukhoi Superjet 100 is the lower operational cost compared to its 100-seat competitors. Operational costs are also minimized due to higher fuel efficiency and lower take-off weight. According to the aircraft operation study, its ownership cost is averagely 15-20% lower than of other similar class aircraft. The highly competitive leasing rate supported by a state guarantee of residual value is also worth taking into account.

SSJ100 is capable of carrying 98 passengers. It is the first aircraft in its class featuring five-seat row with big 32-inch distance between seats. Thanks to a combination of wider seats and higher cabin (over 2 meters) SSJ100 passenger comfort, including the overhead compartments capacity is bigger than of competitors. The aircraft has been designed and manufactured using latest design methods and technologies of leading manufacturers such as French Snecma (engines) and Thales (avionics), US Goodrich (wheels) and Honeywell (auxiliary power unit). The interior has been created by Italian Pininfarina design house. In February 2012 the aircraft was certified by European Aeronautical Safety Agency (EASA).

According to 'United Aircraft Corporation' President Yuri Slyusar, the company has established a steady rate of Sukhoi Superjet 100 production. There are plans to deliver to customers about 30 aircraft each in 2016 and 2017. Today around sixty SSJ100's are being operated in a number of regions, from South America to Southeast Asia.

Meanwhile the international success of Sukhoi Superjet 100 program is evidently increasing., A framework agreement on establishing a leasing company to support Sukhoi Superjet 100 sales in China and Southeast Asian countries has been signed in Moscow. The parties to the quadripartite agreement were Russian-Chinese investment fund, Russian 'Sukhoi Civil Aircraft' company (UAC member), Administration Committee of New Region Xi xian (China), and Chinese New Century International Leasing company. The agreement has been signed under auspices of Russian-Chinese intergovernmental panel.

According to the agreements within three years the Russian-Chinese leasing company should purchase up to one hundred Sukhoi Superjet 100 aircraft valued at about $3 billion. The new leasing company will be headquartered in Russian-Chinese technology park in Xi xian (the province of Shanxi, the capital of Chinese aviation cluster). The town administration will also assist in providing sites for necessary infrastructure to accept and maintain Sukhoi Superjet 100 aircraft.

"This agreement is one of solutions for the task to reconsider our approach to promoting Sukhoi Superjet 100 to international markets. It has

Russian UAC considers Middle East as one of the most important regions

to have its products promoted in including civil aircraft. According to UAC experts there will be 6% average annual growth of passenger traffic within 2015-2034. By the early 2030's passenger traffic of the airlines will have reached 12% of global figure and been 1,845 billion passenger-kilometers. Estimated volume of 60-200-seat civil aircraft sales within the mentioned period will exceed 700 vehicles in the Middle East market. UAC has intention to take a good share in the renewal of the regional fleet.

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been developed in a very short timeframe, for which we are thankful to the Chinese part", said UAC President Yuri Slyusar. "The agreement to establish a Russian-Chinese lease company is a historical event in terms of both scale and challenges offered for national civil aircraft industry. Together with our Chinese partners we will formulate a highly competitive leasing proposal to ensure that SSJ100 aircraft take the significant share in fast-growing aircraft markets of China and Southeast Asian countries".

The new approach by 'Sukhoi Civil Aircraft' to promote Sukhoi Superjet 100 to markets of China and Southeast Asian countries is made up of five components, they are cost efficiency superior to competitors, creation of a big maintenance center with spare parts warehouse and flight crew training center in Xixian, possibility of creating customer-tailored individual interiors and on-site painting.

Towards the East

Russian UAC considers Middle East as one of the most important regions for promotion of its products, including civil aircraft. According to UAC experts the average annual growth of passenger traffic within 2015-2034 will amount 6%. By early 2030's passenger traffic of the airlines will have reached 12% of global figure and total 1,845 billion passenger-kilometers. Estimated volume of 60-200-seat civil aircraft sales within the mentioned period will exceed 700 aircraft in the Middle East market. UAC has intention to take a good share in the renewal of the regional fleet.

Another evidence of growing interest towards Russian civil aircraft has become UAC's presentation of Sukhoi Superjet 100 at the recent Dubai Air Show. The aircraft introduced at the show had been made for Interjet, a leading Mexican air carrier. This Sukhoi Superjet 100 aircraft features focus on comfort. Its cabin has been designed by Italian Pininfarina design house.

Let us note that today VIP-class cabin-fitted SSJ100 is being offered too. After some procedures including installation of additional fuel tanks, wingtips and other technological solutions SSJ100 business version will have increased flight range to ensure nonstop flight over 8,000km distance.

Billion-related interest

This October at the General Assembly of European Regional Airlines Association (ERA) Irish CityJet airline announced it had chosen 98-seat Sukhoi Superjet 100 to renew its fleet and develop route network. The contract signed in this regard involves 15 firm orders to deliver aircraft plus an option to deliver 10 more aircraft. The airplanes will be supplied to CityJet in 2016 and 2017. Under the contractual price the cost of the agreement exceeds 1 billion US dollars including options and services. The first deliveries are to commence during the first quarter of 2016. CityJet airline has plans to use SSJ100 instead of Avro RJ85, which fly over Europe including London

City airport. SSJ100 aircraft will be properly certified to fly to London City by the end of 2016.

In addition to this document another "SuperCare" agreement has been signed with CityJet to perform after-sale maintenance of a new fleet consisting of Sukhoi Superjet 100 airplanes for the period of 20 years. CityJet-owned SSJ100 aircraft are to be maintained by SuperJet International under the after-sale program developed for the customer beginning from the date the aircraft become operational. Besides, CityJet crews are to commence SSJ100 training at the full flight simulator in Venice by the end of the year.

Further technological development

Today UAC production capacities allow producing up to 60 Sukhoi Superjet 100 annually. The Russian aircraft sparkles profound interest in Southeast Asia, Latin America and so on. Experts confirm that in the context of 70-100-seaters this aircraft is becoming the most attractive for many airlines. According to Yuri Slyusar, UAC is intended to focus on further development of Sukhoi Superjet 100 family and soon offer customers a wide range of 75-130-seat regional aircraft.

The project is developing. Thus this autumn Russia commenced endurance tests of the long range Sukhoi Superjet 100 airframe to confirm design service life of up to 70,000 flight hours and 54,000 flights. In 2013 increased- take-off weight Sukhoi Superjet 100 was certified by Aviation Register of Interstate Aviation Committee (AR IAC) which confirmed the aircraft to be corresponding to IAC working regulations and allowed it to be commercially used by Russian air carriers. Currently there is intense work to gain the certificate for Sukhoi Superjet 100 LR version to be issued by European Aviation Safety Authority (EASA).

This version features 4,578 km range, increased 49.45 ton take-off weight and reinforced wing. The aircraft is equipped with standard SaM146-1S18 engine with 5% increased takeoff power.

Meanwhile UAC keeps working on creating 150-210-seater MC-21 narrow-bodied aircraft family. Estimated volume of production is up to 72 aircraft per year. Currently the aircraft's order book is close to 200 vehicles. There is also interest towards this advanced aircraft in foreign markets. "We should sell internationally hundreds of aircraft. This is our goal as to civil segment is concerned", emphasized Yuri Slyusar.

A growing role of Russian aircraft industry in the region has been confirmed by the fact of undersigning of a new contract at the 'Dubai Air Show-2015'. Egyptian KATO Investment holding company shall cooperate with UAC as concerned to MC-21 advanced aircraft family. In particular, the provision is made for 4 MC-21 aircraft as an option and creating an MC-21 regional maintenance center in Egypt.

In conclusion we should note that UAC is ready to consider establishing maintenance centers at partners' locations as well as creating localized production of separate units and components. As Yuri Slyusar emphasized speaking in Bangalore, "from among 272 aircraft which Russia should deliver for Indian Air Force, 222 aircraft are assembled and to be assembled in India featuring high degree of localization. This is a project implemented under Make in India format". This example shows Russian aircraft manufacturers are in a high state of readiness to create customer-advantageous formats and delivery patterns. **/RA&MG/**

Thanks to Corporation's success in international business activity among other things UAC is in the 'Forbes'-rated list of the world's biggest public companies. Recently UAC revenues have grown 34% on annual basis. Superjet 100 civil airliner, Su-30 and MiG-29 fighters, Yak-130 operational trainer are among the most popular aircraft exported by UAC.

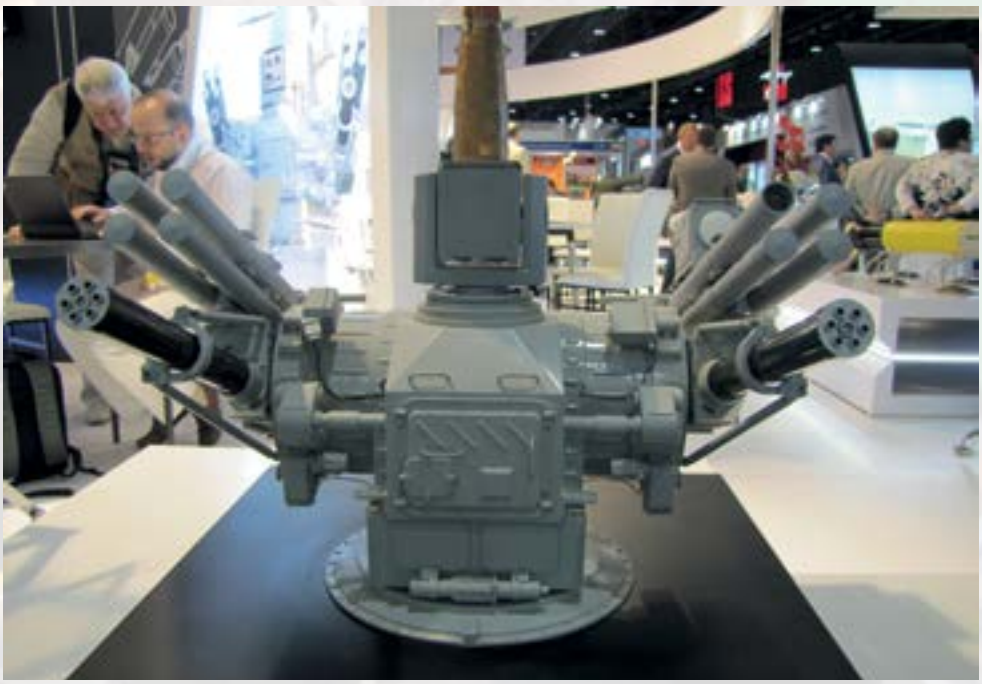
Russia, High-Precision Weapons

The main and reliable points of the modern warfare

International campaign fighting ISIS (prohibited in Russia) and especially Russian participation in it have one more time proven invaluable importance of high-precision weapons. These are the weapons to determine today and future real defensive and offensive capabilities of armed forces of any country. Russia is a certain top performer at world armament market in terms of development and delivery of high-precision weapons.
Moreover, Russian systems like «Pantsir-S1», «Igla-S», «Kornet-EM» and others are determining technological and combat future of high-precision weapons all over the world. High-Precision Weapons holding company, the primary designer and manufacturer of Russian high precision weapons is engaged in producing the world»s best types of high precision weapons. Visitors of Third Edition of Gulf Defense & Aerospace in Kuwait may fully realize it on the scene

of the latest weapons are also increasing. According to Alexander Denisov, Director General of NPO «High-Precision Weapons», "in view of defense and industrial sector mission we are considering well-timed and full fulfillment of purchase obligations as a priority task".

there has been also increasing export activity in the markets of Southeast Asia, Latin America, Central and South Africa. Besides, according to military experts there is every reason to believe that by 2020 export delivery volume of «High-Precision Weapons» may have been increased twice. It is clearly seen at nearly every international armament exhibition where the holding company takes part, its products (both at displays and open sites) are leading objects of regard for experts and ordinary visitors. This is also because everybody wants to take a closer look at famous «Pantsir-S1» or «Kornet-E» and meet the people who create the most efficient and advanced weapons in the world.



Leader in its segment

Russian High-Precision Weapons including 19 enterprises being mostly world leaders in their production and technology segments is the world largest science and technology complex engaged in developing and creating high-precision weapon systems for combat tactical zones. The company being a member of Rostec Corporation, the world largest engineering corporation, is among the leading designers of state-of-the-art weapons in the world.

The weight of the holding company and its products in terms of strengthening defensive power of Russian army and delivery of the newest weapons to word markets can hardly be overestimated. There is a fast growing number of high precision systems and importance of tasks performed with them in the biggest armies of the world. Thus, over the recent five years Russian Armed Forces have had increasing purchase volumes. Export volumes

According to military experts among the calling cards of the company is first of all the above-mentioned «Pantsir-S1» air defense gun and missile system made by Tula instrument design bureau (KBP), ship-based «Palma» air defense artillery system armed with «Sosna-R» missiles, «Kapustnik-B» fire control system, «Kornet-E», «Konkurs», «Metis-M1» antitank missile systems, «Krasnopol», «Arkan» guided missile systems and others. The majority of weapons being exported by «High-Precision Weapons» is second to none in the world in terms of performance and efficiency.

An average annual increase of the company's export deliveries is 25-40% that is certainly a world record in the sector of high precision weapons. Middle East, North Africa, Persian Gulf countries and India are among the most stable importers of the company-made products. Recently

Tula masterpieces

A bright example of a unique company involved in both the development and manufacturing of the most sophisticated weapon systems is Tula-based KBP (a part of "High Precision Weapon Systems" holding company), being a recognized world leader in high precision weapons design. For more than 80 years KBP has been successfully coping with the challenges of designing the most up-to-date weapons, being advanced for its time and superseding their foreign counterparts it terms of performance. The company's team

TULSKY ORUZHEINY ZAVOD

Anti-Tank Guided Missile 9M113M of the «Konkurs-M» System

The missile is intended to engage modern vehicles equipped with the reactive armor, fortified fire emplacements, both moving or stationary surface and afloat targets and low flying helicopters at any time and weather conditions.

The operating temperature range is from –50°C to +50°C. The missile is launched from a combat vehicle, remote launcher or other units. The control of the missile is semi-automatic, the commands are transmitted over the wire communication line.

Caliber, *mm*	135
Average flight speed, *mps*	206
Firing range, *m*	75-4000
Sighting range, *m*	500
War head type	Tandem, cumulative
Average homogeneours armour equipped and unequipped with an active armour penetration with frequency not less 0,5, *mm*	750
Container length with a missile, *mm*	1263
9M113M.00.00.090 Packing for a missile: Dimensions (lenght, wight, height), *mm*	1380x312x353
Weight with a missili, *kg*	49,4

7,62 mm Special Self-loading Pistol

The SSP is an individual weapon for the secret attack and defense also it is intended for noiseless and flameless shooting.
It shoots CP4 cartridges at a range of up to 50 m.
The reloading is carried out automatically with the aim of the blowback bolt recoil energy. The pistol has the firing and trigger mechanism that allows to fire with the full-cocking or self-cocking.
The safety system prevents accidental shots even if the trigger has been accidentally pulled or the pistol has been dropped.
The reliable work of the pistol is guaranteed in any climate conditions in the temperature range from –50°C to +50°C.

Caliber, *mm*	7,62
Bullet muzzle velocity, *mps*	200
Magazine capacity, *cartridges*	6
Overall dimensions, *mm*	30x140x165
Weight with an empty magazine, *kg*	0,7

5,45 mm Kalashnikov Short Assault Rifle with Folding Stock

The Kalashnikov 5,45-mm short assault rifle with a folding stock is an exceptionally effective individual firearm for shooting in the conditions of limited space. The small size and high hitting capability allow to use the assault rifle in every extreme situation. The conventional (with a steel core), tracer and high-penetrating bullets are used for firing. The energy of powder gases is used to reload the assault rifle.
The firing and trigger mechanism of a hammer type is capable of delivering both automatic and single-shot fire. The folding buttstock is very handy, the fire may be delivered from various positions. The assault rifle dimensions are considerably smaller with a folded stock. The magazine is detachable of double-column sector type with the location of cartridges in a chess-board order.
The operating temperature range is from –50°C to +50°C.

Caliber, *mm*	5,45
Rate of fire, *r.p.m.*	650-700
Bullet muzzle velocity, *mps*	735
Sighting range, *m*	500
Magazine capacity, *cartridges*	30
Length of assault rifle, *mm*:	
with folded stock	490
with unfolded stock	730
Weight with a loaded magazine, *kg*	3,2

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have developed and launched the production of more than 150 weapon systems adopted for service with both Russian army, as well as the armies of dozens foreign countries. Currently KBP is a powerful scientific and production centre creating the most sophisticated weapons. The technical solutions implemented in the KBP's products contain more than 5000 inventions.

One of the renowned KBP masterpieces is "Kornet-EM" long range anti-tank missile system, considered as a unique weapon due to its versatility, power and reliability. This multipurpose day/night high-precision missile system is intended to counter both ground and aerial targets. It is able to destroy modern and advanced tanks including ones fitted with ERA. This makes "Kornet-EM" a versatile defensive asset which may be successfully used in local conflicts with their transient combat operations. Besides countering all types of tanks, "Kornet-EM" may easily cope with any lightly-armoured vehicles, fortification structures and ensure reliable defense against aerial threats (UAV, helicopters, etc.) within the range up to 10km.

"Kornet-EM" implements the modern "fire-and-forget" principle, when the targets are actually engaged in automatic mode, which significantly reduce psychophysical stress to operators, requirements to their skills and duration of their training. "Kornet-EM" is also popular for its mobility and ease of handling. The system is produced in two variants: on a portable tripod (for enhancement of anti-tank capabilities of land force units in offensive and defensive operations, as well as reinforcement to the field artillery), or mounted on a variety of light vehicles (car, IFV, APC, etc.)

Obviously, talking about KBP, we cannot fail to mention the well-known "Pantsir-S1" missile/gun system, intended for air defense of military, administrative or industrial facilities and areas against airplanes, helicopters, cruise missiles, high-precision weapons, guided bombs and UAV, as well as for reinforcement of AD units while countering massive air raids and engagement of ground targets. Today "Pantsir-S1" is probably the most renowned and popular weapon both in its class and among all other air defence assets.

There is no wonder that currently "Pantsir-S1" is one of the ten mostly demanded land weapon systems in the world. Escalation of tension, military operations in unstable regions – all this contributes to the growing popularity of the Russian missile/gun air defence system among a variety of countries aiming to enhance their defense capabilities. The geography of its application grows quickly, while military exercises and trials prove that "Pantsir-S1" remains equally successful and reliable both in the sand desert and in the severe conditions of arctic polar night. To crown it all, with all the range of weapons mounted on it, "Pantsir-S1" provides for high mobility, off-road capabilities and ease of operation, being able to destroy a wide variety of targets, including low-altitude air threats.

Unbelievable robotic technologies

Another individual range of products offered by «High-Precision Weapons» includes mobile robotic systems which personify characters of folk tales and famous science fic-

TULSKY ORUZHEINY ZAVOD

9 mm Special Assault Rifle AS

The 9 mm assault rifle AS is intended for noiseless and flameless shooting. The automatic reloading is based on the work of powder gases. The assault rifle is intended to engage the enemy manpower protected with bulletproof jackets and the non-armoured vehicles.

The design features of the assault rifle are:

— high characteristics in the accuracy of fire and closely-grouped fire are achieved due to original design of the assault rifle barrel;

— the high hitting is guarantied due to the subsonic velocity of a bullet;

— making single and automatic shots;

— the folding metal buttstock and the quick detachable silencer make it possible to reduce assault rifle dimensions;

— mounting seats for optical and night sights;

— absolute harmless handling is guarantied with safeties;

Caliber, *mm*	9
Bullet muzzle velocity, *mps*	up to 295
Magazine capacity, *cartridges*	20
Sighting range, *m*:	
with open and optical sight	up to 400
with night sighting device	up to 300
Length of assault rifle, *mm*:	
with unfolded stock	878
with folded stock	615
Weight with an empty magazine and without sights, *kg*	not more 2,5

The advantage of the assault rifle is a detachable double-column sector-type magazine with the cartridges located in a chess-board order and interchangeable with VSS and SR-3 magazines. It fires the 9-mm armor – piercing cartridge SP6 and 9-mm sniping cartridge SP5.

9 mm Special Sniper Rifle VSS

Caliber, *mm*	9
Bullet muzzle velocity, *mps*	282 – 292
Magazine capacity, *cartridges*	10
Sighting range, *m*:	
with open and optical sight	up to 400
with night sighting device	up to 300
Weight with an empty magazine and without sights, *kg*	not more 2,6

The special sniper rifle is intended for noiseless and flameless shooting. The rifle is equipped with an optical sight also it is possible to install a night sighting device. The automatic reloading is effected by the energy of powder gases. The firing and trigger mechanism of a striker type allows to deliver both single-shot and automatic fire.

The design features of the sniper rifle are:

— the original design of the barrel allows to achieve high characteristics in the accuracy of fire and closely-grouped fire;

— the subsonic speed of a bullet and its high hitting effect;

— a silencer ensures noiseless and flameless shooting;

— a quick assembling into three parts makes it comfortable to carry the rifle secretly (in a special bag or case);

— the presence of safeties makes the rifle harmless in handling and prevents making any shots even if the trigger is accidentally pulled or the rifle is dropped or hit when the barrel bore is not locked.

The advantage of the sniper rifle is the presence of a detachable double-column sector-type magazine with the cartridges located in a chess-board order and interchangeable with AS and AM magazines.

The 9-mm armor-piercing cartridge SP6 and 9-mm sniper cartridge SP5 are used for the shooting.

9 mm Small-Size Assault Rifle AM

The 9-mm small-size assault rifle is intended to engage the enemy manpower wearing bulletproof jackets as well as the non-armored vehicles at a distance of 200 m. The automatic reloading is based on the work of powder gases.

The design features of the assault rifle are:

— the magazine quick "ejection" mechanism;

— the metal folding buttstock reduces the overall dimensions and allows to deliver aimed fire with folded or non-folded stock;

— the assault rifle dimensions are the same as a submachine gun has but the firing range and hitting effect of the assault rifle are considerably better.

Caliber, *mm*	9
Bullet muzzle velocity, *mps*	295
Magazine capacity, *cartridges*	10; 20
Length of assault rifle, *mm*:	
with unfolded stock	640
with folded stock	396
Weight of assault rifle with an empty 10-round magazine, *kg*	2,1
Rate of fire, *rpm*	840

The advantage of the assault rifle AM is a detachable double-column sector magazine with the cartridges located in a chess-board order and interchangeable with magazines of the AS and VSS firearms.

The 9-mm armour-piercing cartridge SP6 and 9-mm sniper cartridge SP5 are used for shooting.

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tion books. An absolute leader in this segment is KEMP — Kovrov electromechanical Plant, an enterprise of great history (117 years old!) and unique technological capabilities. Apart from robotics success KEMP is today the only in Russia and one of the global leading manufacturers of stabilization and aiming systems for all types of tanks and IFV»s.

Among the perfect examples of KEMP robotics achievements are ultra-light «Vezdekhod-TM3» and «Vezdekhod-TM5» multifunctional mobile systems as well as light «Varan» system. These off-road vehicles are well-known in many regions of the world, not only by showpieces. These multifunctional mobile robots are designed for remote works in hard-to-reach and dangerous areas.

The systems are capable of performing visual reconnaissance by means of TV system; searching and identifying suspected and dangerous items including those located inside buildings, passenger compartments and under vehicles. Under a command by a remote operator the systems are capable of neutralizing dangerous items on site or bringing them (on a trolley, for example) to a certain place. It is obvious that modern complicated conditions make these products several times more demanded in world market because safe access to possibly dangerous items today is very important.

By the way, it is the first time «Vezdekhod-TM3», «Vezdekhod-TM5»and «Varan» have been introduced at Third Edition of Gulf Defense & Aerospace in Kuwait. However they are quite ready and tested to be used in this region. Even in high temperatures, sand and dust this equipment remains very reliable and easy-to-maintain.

KEMP also introduces for the first time its «ANT 750R» and «ANT 1000R» mobile robotic systems in Kuwait. The systems are designed to reduce possible damage to mini loader driver when working in dangerous and harmful conditions thanks to remote control. According

to manufacturers this equipment has performance equal to the best world counterparts, wide range of capabilities due to dual control (manual and remote) and removable attachments.

There is a key aspect. All above-mentioned equipment has another perfect advantage, which is a competitive price. Ability of making unique equipment of quite low price is one of the special features of «High-Precision Weapons» companies. The same may be said about KEMP-made «Trona-1» and «STNO» navigation systems, «Arbalet-DM» remotely-controlled weapon station and equipment manufactured by other famous enterprise being the members of «High-Precision Weapons».

Robust «Palma» which came from the North

The fact that unique but not very much expensive developments are among the core features of «High-Precision Weapons» holding company can be also judged by the work of the famous Nudelman Precision Engineering Design Bureau (KBTochmach) which is a diversified enterprise engaged in creating weapon systems and military equipment. The bureau is involved in creating the state-of-the-art armament dedicated to Army, Navy and Air Force… The company has been making unique high-precision weapons for more than 80 years now.

By seeing «Palma» ship-based air defense artillery system introduced at Kuwait-hosted exhibition one can fully realize the enterprise»s highest capabilities. The system fires «Sosna-R» surface-to-air missile. The system can be used for wide variety of purposes such as defending ships and boats, military facilities, air fields, radars and industrial assets against cruise missiles, smart bombs, airplanes and helicopters. It is also capable of engaging small-capacity above-water and shore-based targets. Like nearly other products by «High-Precision Weapons» introduced at Third Edition of Gulf Defense & Aerospace in Kuwait «Sosna» is the second to none in the world.

«Sosna» system designed to defend army units in any type of engagement and on the move against air weapons and reconnaissance facilities is also remarkable. It can be efficiently used during day and night, in limited visibility, in possible natural interference and jamming environment.

Stabilizer

Among absolutely unique products by «High-Precision Weapons» which are going to be introduced to Kuwaitis, a special part is played by Research Institute VNII «Signal»-manufactured tank weapons electromechanical stabilizer 2E58 which controls gun and turret of modern tanks. The stabilizer has been tested on various tanks and under many conditions for its best capabilities definitely could be found. In particular, this stabilizer provides an opportunity to make redesign and significantly increase fire efficiency due to improved characteristics.

Besides, in Kuwait VNII «Signal» is to introduce computerized fire control systems «Kapustnik-B» and «Mashina-M». The both products are well-known and quite popular.

Moreover, «Mashina-M» system became so versatile that almost all operations can be done automatically. Crew should only monitor the control system»s operations.

1V126 «Kapustnik-B» is also capable of direct interacting with gun fire control systems. It will also be shown at Gulf exhibition. One of the differences between the two systems is that «Kapustnik-B» is mounted on APC BTR-80 but not on MTLBU (multipurpose light armored towing vehicle).

The Research Institute has many technological capabilities, unique test basis and well-balanced production infrastructure. Advanced engineering technologies as well as facilities and resources help successfully develop new equipment. The institute's products are protected by more than 1,300 invention certificates and patents.

This enterprise is an example of successful combination and cross-pollination of design engineering and manufacturing activities within «High Precision Systems» holding company.

Living history

Across the globe defense enterprises having over three century-long history can be counted on fingers. Among such enterprises is Tulsky Oruzheiny Zavod which has been producing reliable, attractive and quality hand weapons for more than three centuries now. Armed with Tula plant-manufactured rifles, assault rifles and pistols hundreds of thousands militaries, from privates to generals, have been successfully performing their military duty. It can be said that Tula weapons are a sign of special choice, reliability and style.

Tula plant-made armament is supplied to dozens of countries. Meanwhile, quite wide selection of products and reasonable prices make the Tula weapons quite popular. Below are some specific examples of weapons being produced now by Tulsky Oruzheiny Zavod.

AS 9mm powder pressure-operated special assault rifle is capable of silent and flameless firing. The rifle is designed to kill personnel, clad in fragmentation vests as well as unarmored equipment. A unique barrel design ensures high performance with regard to fire accuracy. A subsonic bullet has high casualty effect. Thanks to metal retractable butt and quick-change silencer the rifle has decreased size for carrying (mounting seats for optical and night-vision sights are available).

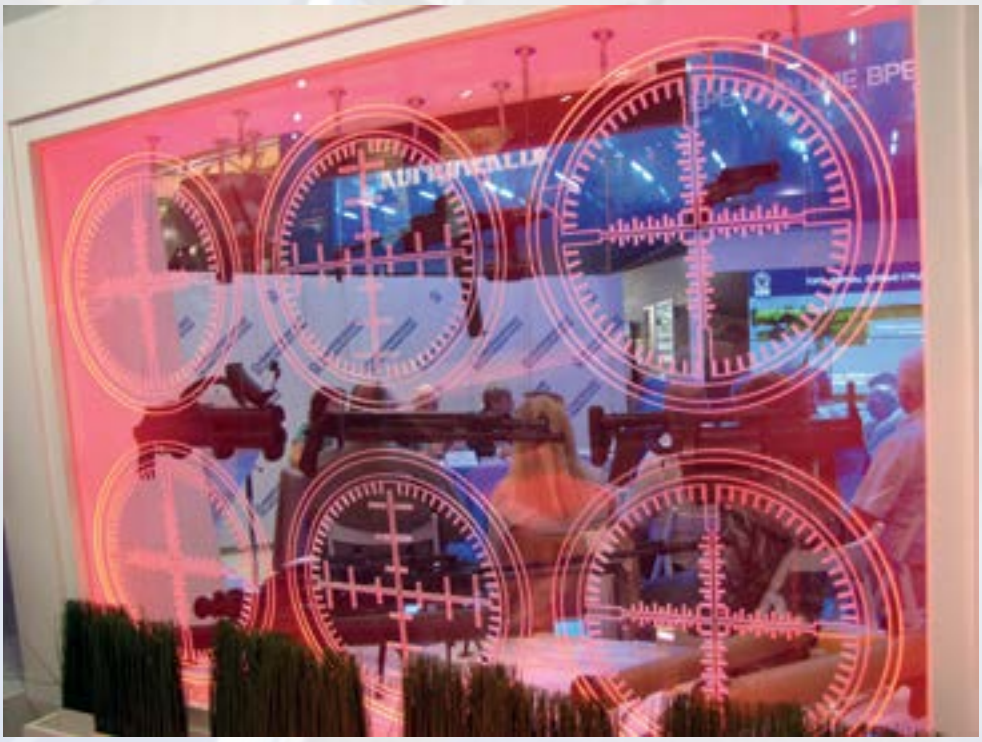
Another example is VSS 9mm special sniper rifle for silent and flameless firing. It is equipped with optical sight and may be fitted with night-vision sight too. Hammerless firing mechanism ensures both single-shot and automatic firing. A unique barrel design ensures high performance with regard to fire accuracy; silencer results in noiselessness. Easy-to-carry rifle can be quickly disassembled into three parts.

Among pistols is 7.62mm special self-loading pistol, which is a high performance hand arm. It uses SP4 special cartridges for silent firing and effective range of up to 50m. The pistol features self-loading mechanism. The weapon is safe thanks to safety locks which help avoid fire due to accidental triggering as well as during falls and hits. The pistol is surely reliable in any climatic conditions within temperature range from –50°C to +50°C.

Among manufacturers of the best modern weapons Tulsky Oruzheiny

Zavod is known not only for its hand arms. Thus, one of the plant»s top-ranked bestsellers is 9M113M anti-tank guided missile for «Konkurs-M» system. The missile is designed for day and night (bad weather conditions) killing modern armored vehicles equipped with active protection system as well as fortified fire positions, mobile and stationary ground and water targets, low-flying helicopters and so on. The missile operational temperature range is from –50°C to +50°C.

Both hand arms and the missile will be available at Kuwait exhibition, where Russian «High-Precision Weapons» holding company will certainly be one of the most outstanding exhibitors in terms of proposals. **/RA&MG/**



Secure rescue at any height

Unique autonomous rescue parachuting back-pack system for emergency escape

The innovative Russian private Space Rescue Systems Ltd. (SRS Ltd.) company (www.cosmic-rs.com) proposes a unique and unrivalled emergency rescue vehicle SPARS® - an Autonomous Rescue Pneumo Transformable Chute Back-pack System - a validated forefront rescue solution for guaranteed secure individual emergency escape from nearly any high elevation structure (skyscrapers, offshore platforms etc.). The SPARS® project is resulted in a creation of a brand new pneumo-framed aerodynamic devices technology. There is no doubt in the near future this solution is going to be a must-have in skyscrapers construction all over the world

The SRS Ltd. proposes a SPARS® high rise escape technology that has a global nature. It is uncovered market niche with an obvious but unrealized human requirement to be and to feel safe while living or working in high elevation buildings. In case of emergency than traditional evacuation is impossible or ineffective those people all over the world have practically no means of urgent secure rescue from the height and need an alternative solution.

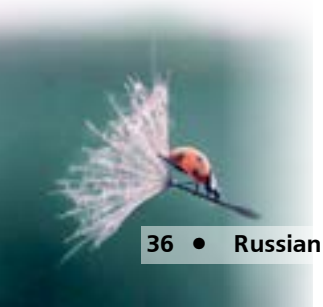
Actually the technical reviews shows that at present there are practically no means for secure alternative escape starting from 60÷80 m height and higher available on the market. But according to the sad firefighter's statistics about 3÷5% of people being caught in alarm situation on the high-rise building used to try escaping from the windows and usually perished. On the other side homeland security analytics says that in average an every skyscraper in the world is expected to be subjected to a fire case (terroristic attack or other emergency) once in every 47 years.

So the SRS Ltd. has decided to resolve the problem in finding an alternative to traditional evacuation methods technical solution. It takes about eight years of R&D to resolve the task. Finally it is resulted in creation a brand new escape technology - an Autonomous Rescue Pneumo Transformable Chute Back-pack Solution for secure personal rescue from high-elevation structure in case of emergency than traditional evacuation methods are impossible.

The SRS. Ltd company in outsourcing cooperation with 18 leading Russian and foreign aerospace companies has fulfilled full-scale research and development activities to develop the project from conceptual proposal stage to releasing operating prototypes unparalleled anywhere in the world.

The SPARS® escape technology is based on a synergy of sophisticated aerospace technologies such as Air-Aspirator Rapid Inflation; Elastic Pneumo-Frame Catapult Ejection; Air-Drag Deceleration; Air-Bag Shock Absorbing and others. Such technologies were invented for space probes deceleration during descent in atmospheres of Solar system planets and its landings on surfaces.

The SPARS® device provides a secure individual escape of untrained person or valuables cargos with weights 45÷120 kg. from about any of existing high-rise (50÷1000m) facilities (skyscrapers; towers; offshore platforms etc.) with guaranteed safe landing on any underlying surface in urban terrain or water in



case of emergencies than traditional evacuation methods are impossible.

The SPARS® solution meets the Russian Ministry of Emergency Situations (EMERCOM) requirements for high-rise emergency escape apparatus (GOST R 22.9.08–2005; GOST R 12.4.206–99) and provides for the following unique capabilities, never implemented before:

1. Alternative of emergency escape (so-called 'last resort rescue')
2. Emergency evacuation of an untrained person having weight of 45÷120 kg, from heights of 50÷1,000 m;
3. Ready-for-use in 45÷60 sec;
4. Self-sustained operation and independently selected escape route;
5. User-friendly operation for untrained persons and fully automated rescue procedure right from start;
6. Personal protection against external hazards during evacuation;
7. Appropriate weight of a back-pack-type carried device;
8. Secure injury-free landing on any underlying surface.

The SPARS® unit for individual use had required a special certificate basis. In this regard the National Standard (GOST) 4240-001-2012 specifying medical and technical requirements for injury-free operation by untrained persons rescued by means of new type SPARS® shock-absorbing systems entered into force in 2013.

To have certification tests performed a special Hybrid-III (USA) crush test dummy-based anthropomorphous (bionic-like) instrumentation station has been developed and created by the SRS Ltd., which has no equals in Russia.

A full cycle of comprehensive calculations and testing to validate design properties and performance has been performed. Up to now the SPARS® device technical operational reliability is 98.7% but further testing is under way.

New SPARS® escape solution provides the following advantages:

1. Alternative (a "last resort") escape mean for ordinary person in case of emergency in the high-rise structure;
2. Secure rescue of untrained personnel (18÷70 years old) from high elevations from 5 till 1000m (no practical means available starting from 50 m height);
3. Off-line capability of the system provides mobility that helps to find optimal self-escape way of out from emergency situation;
4. Smooth automated ejection from the emergency object after manual initialization of the system;
5. Guaranteed deploy of the canopy with 3÷5 m loss of height irrespective of air flow speed pressure;
6. Protection from dangerous external factors (fire, hits, smoke) during descent;
7. Safe landing on any underlying surface in urban terrain;
8. Reusable and does not sink.

In packed and assembly complete mode the SPARS® system weights 25 kg with back-pack dimensions

The SPARS® General Specifications

1. Total Assembly Weight – 25 kg
2. Rescue Payload Weight – 45÷120 kg
3. Descent Elevations – 5÷1000 m
4. Landing Velocity – 5÷7 m/s
5. Landing Angle – < 30°
6. Footboard Barrier Elevation – 1.5 m
7. Descent Time – 3÷150 s
8. Ready-to-use Time – 45÷60 s
9. Launch Initialization Time – 15÷20 s
10. Inflating Gas – Air;
11. General Dimensions:
    a. Aassembled – 900x450x300 mm
    b. In Descent mode – 6,500x2,700mm *(without conopy)*

Actual Landing Impact Loads:

Acceleration directions:

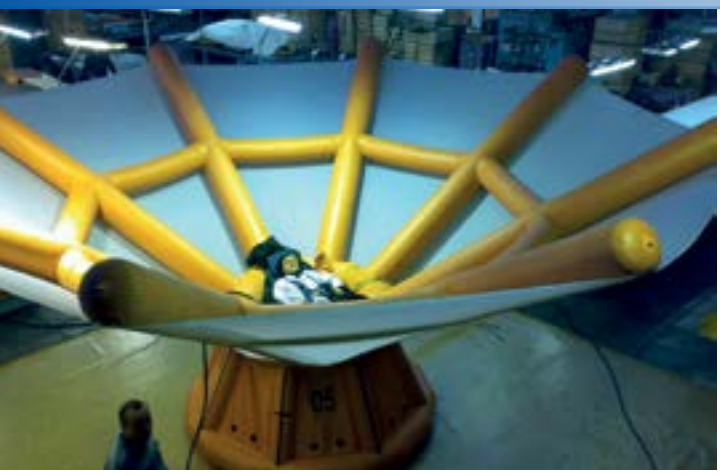
'chest-to-back' – up to 8÷10 g

' side-to-side', 'head-to-pelvis' – up to ± 6 g

Acceleration Exposition Time – less than 0.5 s

Acceleration Growth Velocity – less than 500 1/s

User's age – 18÷70 years



850x450x350mm and has easy- to-use suspension system.

The SPARS® has its Technical Data Sheet (TU 801130–5047075064–01–10) and working design documents issued. Under the SRS Ltd requirements Russian gas-filling systems (GFS) manufacturing company has mastered Autonomous Two-Stage GFS for SPARS® (TU 8042–017–45307693–2013).

The SRS Ltd. Intellectual Property Rights on SPARS® and its 'know-hows' have been completely protected within Russia (9 Patens, 3 Trade Marks) and abroad under PCT (Patent Cooperation Treaty) procedures 2 'umbrella' requests for SPARS® have entered national level in 15 countries and covered 78% skyscrapers and 95% potential SPARS® manufacturers. 13 Patents of the US, China, Japan, Canada, South Korea, Singapore, the Ukraine, Indonesia, Malasia and Australia have been already received.

Three Russian EMERCOM Certificates of Conformity were received for the SPARS®. 'Aerospace medicine and military ergonomics' R&D Institute of the Russian Air Force has granted an official approval for the SPARS® physical adaptability.

The SRS Ltd. company now is looking for cooperation with a strategic Partner and/or investor in order to industrialize the brand new SPARS® product; to make it commercial; to prepare and set up its production and to enter with it into a global commercial market having all necessary intellectually property rights protected.

An accurate assessment of the terms, timeframes and investments required for the SPARS® industrialization it is foreseen that a Partner from the region where product itself (or its production) could be demanded (Middle East, China, US, Europe, Asia-Pacific etc.) could formulate and provide the SRS Ltd. Company with the regional authority technical requirements to upgrade the product specifications and also could determine the necessary level of licensing.

At the same time in order to reduce production costs it is desirable to find and select a local manufacturer taking into account its technical capabilities and possibility to use appropriate production process technologies.

Upon receiving necessary information from a Partner the SRS Ltd. Company could finalize the design documentation, to fabricate a prototype with specifications meeting local needs and to determine expected investments and timeframes necessary to prepare and to run mass production of the product in the region.

Shares and Conditions in the business organization is a matter of further negotiations. The SRS Ltd. Company would be ready to demonstrate its good willing approach and to meet a Partner in negotiations halfway with necessary flexibility in some critical questions aiming to achieve mutually beneficial cooperation.

Such forms of cooperation as Joint Venture, Technical, Manufacturing or License Agreements are feasible.

For a strategic industrial Partner sought who would be interested to

There are following innovations in the proposed SPARS® technology:

1. A brand new free parachuting technology (means and escape method) was created for emergency escape from heights higher than 50 m where practical methods for safe evacuation of a person are not available on the market.
2. Sinergy solution based on specially designed and produced from film-laminated fabric a rapid inflatable air-beam single volume frame structure for:
   - Elastic catapult ejection of a human from a window of an emergency object;
   - Forced deploy of the canopy with only 3÷5 m loss of height and irrespective of air flow speed pressure for deployment (usual parachute requires of 25÷100 m free fall and/or 250÷350 km/h speed of airplane to be deployed);
   - Guaranteed safe landing with 5÷6 m/s vertical velocity on any underlying surface in urban terrain using integrated air-frame shock absorbing pneumo dumper.
3. Fully automatic mode of usage (after manual initialisation of the apparatus) and all the descend envelope accelerations bearable for an ordinary person make the escape solution available for use by untrained people from 18 till 70 years old;
4. New type of light weight air-proof film coated fabric for air-beam inflatable frame structure was created.

The Special National Standard (GOST) for shock acceleration limits for untrained human using new type of lodgment Rescue Parachuting Systems was issued.
The Crash test dummy Hybrid-III 50% percentile was instrumented, calibrated with the help of centrifuge, certified and used as anthropomorphic instrument for human acceleration checking during field tests and validation of the Autonomous Pneumo Transformable Escape Chute.

run mass production of the SPARS® in the region and enter an empty market with protected rights it would be necessary to have production technology experience in the fields of:

- thin coated/laminated fabric manufacturing;
- assembly from these fabrics a complex air-beam-frame air-proof inflatable structures;
- parachute canopy manufacturing;
- air-aspirator gas filling manufacturing;
- plastics (carbon) manufacturing and forming
- human field (air-borne) tests plastic forming and others.

A Partner sought may be expected to undertake part of those activities or provide financing for already SRS Ltd. Company existing outsourcing manufacturing solution in Russia on a mutually beneficial basis.

As for the SPARS® solution operation such a potential entity sought (hotels, profitable houses; skyscraper's management company; offshore platform management; airborne attractions & entertainment companies etc.) should only require a free window exit sized 1000x500 mm at the appropriate height to use Autonomous Pneumo Transformable Escape Chute and propose to its clients an additional exceptional secure service with limited warranty.

General market estimations shows there are over 7,303 finished and 2,500 under construction skyscrapers worldwide with the heights of 100÷828m, over 100,000 buildings having height of 50÷100m and more than 800 offshore platforms. Taking that analysis into account the SPARS® may have potential market capacity of up to $700-850 million annually.

Furthermore, the SPARS® estimated potential market capacity is worth over $3.5 billion in commercial sector alone. The Governments market is bigger but for accepting that new technology implementation it may require some updates of the appropriate local norms and regulations. **/RA&MG/**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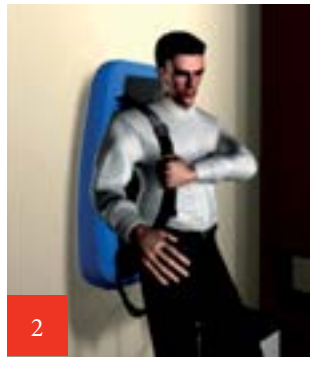
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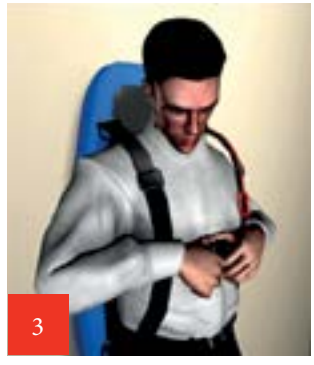
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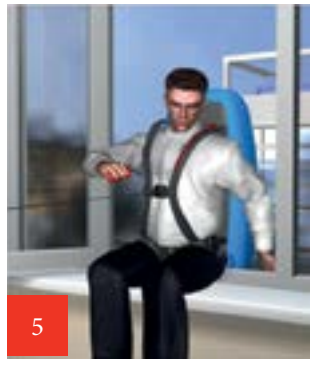
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SPLAV: New Possibilities of MRLSs

SC "SPLAV SPA" is the leading Russian enterprise in development and organization of production of the Multiple Launcher Rocket Systems (MRLS) for the Army, Navy, and Air Force. Over its history from the time of its foundation in 1945, such outstanding systems as GRAD, URAGAN, SMERCH for the Army, GRAD-M, UDAV-1M, OGON', DAMBA, RPK-8 for the Navy have been developed at JSC "SPLAV SPA", dozens of unique techniques for the rocket projectiles, the artillery shell cases of calibers from 24 to 152 mm made of various materials have been elaborated. Nowadays our engineering developments and production techniques in the field of the rocket artillery and shell cases production are known worldwide

The distinctive feature of the Russian MRLSs development is striving of their designers to constantly enhance the rocket artillery combat capabilities through development of the new types of the rocket projectiles fitted with different-purpose warheads, as well as upgrade of the launch vehicles for the army-accepted systems.

Specialists of the enterprise have developed modernization programs for the GRAD and SMERCH systems which ensured execution of the fire missions on destruction of the enemy over a distance of, correspondingly, 40 and 120 km, enhancement of capabilities of fire engagement against the typical targets, computerization of the fire preparation and delivery, upgrade of the launch vehicles.

JSC "SPLAV SPA", being the world leader in delivery of ammunition for the Russian-produced MRLSs, conducts active operations in the field of military and technical cooperation through JSC "Rosoboronexport", the Russian State Intermediary.

Nowadays JSC "SPLAV SPA" offers at the international defense market upgraded GRAD and SMERCH MRLSs, including different-purpose warheads rocket projectiles with the range of fire of, correspondingly, 40 and 120 km, as well as the new generation of the 80mm unguided aircraft rocket armament, C-80FP HE-Fragmentation penetrating warhead unguided aircraft rocket projectile and a small-type high energy solid rocket propellant motor.

JSC "SPLAV SPA",

being the world leader in delivery of ammunition for the Russian-produced MRLSs, conducts active operations in the field of military and technical cooperation through JSC "Rosoboronexport", the Russian State Intermediary.

Presently the following systems are being offered for export:

GRAD MRLS:

1. 122mm Rocket Projectiles (RPs):

— 9M521 RP with increased power warhead;

— 9M522 HE-fragmentation separable warhead RP;
— 9M218 shaped-charge fragmentation submunitions RP.

2. 2B17-1Launch Vehicle (LV) is equipped with automated laying fire and control system (ALFCS).

Besides, the algorithm has been elaborated in order to upgrade GRAD and GRAD-1 MRLSs standard RPs by increasing the range of fire up to 40 km.

SMERCH MRLS:

1. 300mm RPs:
— 9M525 fragmentations submunitions warhead RP;
— 9M528 HE-fragmentation separable warhead RP;
— 9M529 fuel-air explosive warhead RP;
— 9M531 shaped-charge fragmentation submunitions warhead RP;
— 9M533 sensor-fuzed fragmentation submunitions warhead RP.

2. 9A52-2 LV (on MAZ chassis), 9A52-2T LV (on Tatra chassis) 9A52-4 LV (lightweight six-round launcher mounted on elongated KAMAZ chassis) equipped with ALFCS.

3. 9T234-2, 9T234-2T, 9T234-4 Transporter-Loaders.

4. 9F819 Arsenal Equipment.

5. 9F827 Training Aids.

6. 9F840 Training Set.

7. MP32M1Unified Command and Staff Vehicle.

8. 1B44 Radio Direction-Finding and Meteorological Complex.

Upgrade of GRAD and SMERCH LVs ensured the new capabilities of these systems:
— Fire delivery from the unsurveyed in the topographical respect firing position thanks to the autonomous calculation of the LV ramp longitudinal axis azimuth and plotting of the own coordinates;
— Cutting time from the moment of taking up of the temporary firing position to the moment of commencing fire by a factor of three;
— The LV ramp laying operable from the cab and without usage of the aiming points;
— Visual presentation on the computer screen of a graphical information for the LV ramp laying, the ground map with indication of the LV position, destination point, and route of advance;
— Increase in the LV survivability thanks to cutting time in the firing position;
— Increase of the operator-layer comfortability, especially in the adverse weather conditions and at night;
— Increase of the LV self-sustainment thanks to imparting to it of the navigation and topographical survey functions, which ensures shoot-and-scoot tactics, autonomous movement to the assembly point after firing, compensation of errors due to the human factor;
— reduction in the crew number up to 2 persons (GRAD MRLS), and up to 3 persons (SMERCH MRLS).

Beginning from 2003, the enterprise has been granted the right to independently carry out foreign trade activities with respect to the products for military purposes to the extent concerning delivery of spare parts, aggregates, assemblies, devices, completing units, special, training, and auxiliary equipment, technical documentation for the earlier delivered products for military purposes, carrying out of works on technical inspection, repair (including modernization subject to carrying out of R&D works), and other works ensuring complex service maintenance of the earlier delivered products for military purposes, as well as training of the foreign specialists in carrying out of the above works. **/RA&MG/**

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Comprehensive solutions Russian civil and military unmanned aircraft

According to experts, Russian unmanned aircraft have quite good future including exporting for military and civil purposes. Although statistically Russia is now behind world leaders in terms of quantity of drones being produced; the country and its defense industry have good reasons to become one of the world's top performers including unmanned aircraft supplies to Latin America

GLOBAL LEADERSHIP EXPERIENCE

In 80's last century our country was one of the leaders in designing unmanned flying vehicles (UFV's). Soviet defense industry was engaged in producing large-size Tu-143 'Reis' and Tu-141 'Strizh'.

Tu-143 'Reis' had indeed considerable dimensions (lenght - 8.06m, wingspan – 2.24m, weight – 1,230kg). The aircraft was designed for performing tactical reconnaissance in immediate battle area and enroute radiation monitoring. Upon completing its flight Tu-143 turned back to return to a landing area, where after engine shutdown and pulling up it landed by means of rocket-assisted parachute system and gears. In 1970–1980's 950 such aircraft had been produced, some of which have been operated so far.

Tu-141 'Strizh' was even larger. Its length is 14.33m, wingspan – 3.88m, weight – 5,370kg. It was designed for performing reconnaissance within the range of several hundred kilometers beyond frontline at transonic speeds. The aircraft was equipped with photographic and infrared surveillance facilities ensuring its operation under any conditions and at any time of day and night. Soviet Air Force used the unmanned aircraft from 1979 until 1989.

However the very first native UFV's had been produced much earlier. One of the first planes was La-17R reconnaissance drone. Its development had commenced as far back as 1959. In 1963 over 20 drones were manufactured. Flying at altitude of 900m it was capable of performing photographic surveillance of objects at a distance of 50-60km and flying at 7,000m it could see objects at a

distance of up to 200km. The aircraft had been in service until early 70's but never used operationally.

Within the period from mid-60's until early 90's Soviet designers created about fifteen different UFV's. However, in 90's and early 2000's all the know-hows were lost. Russia rolled many years back in this regard.

UFV's were first used operationally during Israeli-Syrian conflict.

MAKING UP LOST GROUND

Till now UFV's have been much updated and improved; their capabilities and operational role increased. Unmanned aircraft industry is enjoying a boom worldwide. There is wide range of vehicles being produced from mini drones to be used individually at battlefield on out to complicated and expensive strategic aircraft. Thus, all six-generation fighter planes are being designed in two versions, i.e. pilot-controlled and unmanned. But even small UFV's having reconnaissance and electronic warfare functions are supplemented with strike capabilities comparable to fighter and attack aircraft.

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Israel is the world's leading UFV manufacturer. 80% of vehicles made there are exported to 49 states including Russia. From 2005 till 2013 Israel has received $4.6 billion for its UFV's. According to SIPRI institute (Stockholm), in 2001–2011 Israel has controlled 41% of international UFV market.

As to UFV production Russia is so far lagging behind the world standards. The national political and military authorities have assigned the task to make up lost ground. Thus, by 2022 a share of Russian unmanned aircraft should be at least 5%.

Russian military industry has some certain know-hows in this regard. Many specialists of various national enterprises and design offices including 'Rostech' companies are dealing with the problem.

MODERN RUSSIAN UFV'S

Currently the most well-known Russian military drones are 'Orlan-10' and 'Dozor-600'. 'Orlan-10' is a short-range tactical reconnaissance drone. It has 14kg takeoff weight including 5kg payload. The vehicle features significant flight duration, which is 16 hours. 'Dozor-600' is a heavy reconnaissance and attack drone with running takeoff and landing. Radar, video camera, thermal imager and photo camera are key payload elements.

As far back as 2013 State Corporation 'Rostech' announced it focused efforts on developing UFV-based air reconnaissance and surveillance systems. While making drones 'Rostech' works in international cooperation, entices investors and uses innovative approach such as additive technology (layer-wise 3D printer manufacturing).
The first full-scale UFV demonstrator has been recently made using this technology

Having certain updates it can perform attack functions.

In 2011 an approximately $400 million-worth contract was concluded to assemble Israeli IAI unmanned flying vehicles in Russia. A production of more expensive facilities like Searcher MkII codenamed in Russian as 'Forpost' has been arranged at Ural Civil Aviation Plant (UZGA) being a member of 'Rostech'.

Now several dozens of various class and type unmanned facilities have been designed in Russia. However, mini drone class is still the prevailing one.

CIVIL DRONES

Key issues of UFV production development were discussed in Moscow at 2nd International Conference 'Unmanned Aircraft-2015' held in April. The forum was attended by defense, transport and other ministries' representatives. It is evidence that all of them are directly interested in the development of unmanned aircraft industry and consider it as very important.

Much attention has been paid to extending scope of UFV application to perform not only military but civil tasks such as oil industry, search works, monitoring flood situation and forest fires for search and rescue purposes, increasing urban life support systems efficiency, precipitation control, guard and monitoring activities, hunting industry, weather technologies, environmental protection.

Some experts and defense industry authorities have an opinion that Russia should not focus on attack drones. Firstly, it is too dangerous to entrust a robot to kill a target. Secondly, this task can be well performed by pilot-controlled aircraft and cruise missiles. While there is a good future for Russian UFV's used for reconnaissance and target designation.

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Everybody will be able to see the first full-scale 750kg 'Chirok' UFV at MAKS show this year. The UFV first flight is also scheduled for 2015.

Currently the next model, 'Chirok'-based 2-ton multipurpose air cushion flying vehicle is being created. The new drone uses the same technologies but with a number of features it is going to rank over the 'younger' model. The independent development project is ready now; a test article may be made.

According to plans, in 2015–2016 Russia is going to create 5 ton UFV. And in 2018, a new heavy 20 ton attack drone is expected. In February 2015 'Kalashnikov' Concern has agreed to buy a majority interest (51%) in one of the leading Russian UFV-making company, ZALA Aero.

"We are planning to develop and produce unmanned flying vehicles, mobile and ground-based control stations at the premises of 'Kalashnikov' and ZALA Aero", said 'Kalashnikov' Director General, Alexey Krivoruchko. "Unmanned reconnaissance airplanes, helicopters and aerostatic balloons will be the key products".

The UFV's produced are to be used to defend state border, perform reconnaissance and rescue operations, special operations, air monitoring high threat facilities, carry out geodetic, cartographic works and scientific research under severe climatic conditions. **/RA&MG/**

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Russian special equipment at Milipol 2015

At the MILIPOL 2015 International Exhibition of Internal State Security (November 17-20, Paris), Rosoboronexport, part of the Rostec State Corporation, will present advanced Russian special technical facilities, equipment and weapons for law enforcement agencies

"Russian products for law enforcement agencies are exported to more than 40 countries. Terrorism, crime, illegal migration, drug trafficking and smuggling pose an obvious threat to all states, regardless of the geopolitical circumstances. That is why we are open to working closely with all parties interested in cooperation, including the European partners. Our solutions have been successfully used by Russian law enforcement agencies and can significantly strengthen the security of any country," said Valery Varlamov, Head of Rosoboronexport's Security Department, who leads the Company's delegation at the exhibition.

Rosoboronexport will hold the presentations of the type integrated security projects for cities, critical facilities, land and sea borders, and major sporting events. These systems are designed to create a single information space, coordinate and control the activities of various law enforcement agencies and special services. The components available with partner countries as well as domestically-developed products can be integrated into them.

Highly protected Russian IT-solutions and more than 200 pieces of special technical facilities, special equipment and weapons are offered for building integrated security systems.

Special small arms intended for the anti-terror units are represented by pistols, submachine guns, sniper rifles, grenade launchers and assault grenades of various power and calibers. A feature of these arms is that some of them are noiseless and flameless (PSS pistol, SR.3M submachine gun, VSS and VKS sniper rifles, AS assault rifle). Rosoboronexport also offers a wide range of assault weapons: 6G-30 and GM-94 grenade launchers with lethal and non-lethal ammunition, special multipurpose vehicles, versatile helicopters and fast patrol craft.

Over the 15 years since its foundation in 2000, Rosoboronexport has supplied its foreign customers with more than 12,000 units of special small arms and more than 200,000 units of special technical facilities, including personal protective equipment, special communications systems and others. African and Latin American countries have become the promising markets in this area in the recent years. **/RA&MG/**

Arctic helicopter to Russia's Defence Ministry

Ulan-Ude Aviation Plant hosted a ceremony marking the acceptance of the Mi-8AMTSh-VA by the Russian Defence Ministry's Arctic groupings. The first Arctic helicopter was developed specially for operation in the country's north in temperatures lower than -40°C. With auxiliary fuel tanks, the helicopter has a range of over 1,300 km

The Mi-8AMTSh-VA helicopter was developed on the basis of the Mi-8AMTSh-V, which has already been delivered to the Russian Defence Ministry. The helicopter is fitted with equipment enabling it to operate in low temperatures, where orientation is difficult, polar night, without satellite signal, where radio links are unreliable, over great expanses of water, and a long way from base.

'The wealth of expertise we built up in the course of the development, production and testing of the Mi-8AMTSh-VA in the Far North are also going to be incorporated into the commercial model of this Arctic helicopter,' Russian Helicopters CEO Alexander Mikheev said. 'This helicopter is crucial to the development of transport infrastructure in Russia's northern regions, and also to companies in the oil and gas sector to support offshore work.'

The contract for the delivery of helicopters that will carry out operations as part of the Arctic groupings was signed with the Russian Federation's Defence Ministry in February, and was carried out by Ulan-Ude Aviation Plant. In addition to the Russian Armed Forces, other Russian law enforcement agencies have shown considerable interest in this model.

The Mi-8AMTSh-VA helicopter is equipped with powerful Klimov-made VK-2500-03 engines and enhanced gears. It boasts a TA-14 auxiliary power unit delivering improved thrust and power output meeting the needs of the helicopter's energy-intensive on-board systems.

Crew and cargo cabin heating systems, improved insulation and insulating shades, built-in systems to heat the powerplant and gears, Teflon hose incorporated into the hydraulics, and oil and fuel systems ensure that this helicopter can operate in very low temperatures. The Mi-8AMTSh-VA is equipped with special covers to improve the efficiency of the systems responsible for heating the main components in temperatures lower than -40°C.

The digital autopilot will help improve piloting efficiency and navigation accuracy on the Mi-8AMTSh-VA in areas of reduced visibility and Arctic polar night. The helicopter is also equipped with a range of navigation systems — duplicate satellite systems, digital avionics enhanced with built-in map generation and strapdown inertial reference systems enabling it to identify its current coordinates in the event that satellite signal is lost.

The helicopter's weather radar identifies dangerous weather conditions in both horizontal and vertical profiles, scans the ground area, and identifies objects and shorelines. The Mi-8AMTSh-VA is also kitted out with airspace observation systems to warn of other aircraft in low visibility conditions and search directional radio that operates on all emergency frequencies, and which can be used in search and rescue operations.

A specialised communications suite ensures reliable, un-interrupted radio links over a wide range of frequencies. In order to support the helicopter's operation in polar night and when it is dark, the Mi-8AMTSh-VA helicopter has been adapted with night vision equipment. Special features have been included to improve operating conditions for members of the crew during lengthy periods away from base, such as facilities to heat water and food.

Mi-8AMTSh-V — is a modernised helicopter developed at Ulan-Ude Aviation Plant on the basis of the Mi-8AMTSh. It boasts the latest Klimov-made VK-2500-03 turboshaft engines, a more powerful auxiliary power unit and gears, advanced protection systems based on on-board defence systems offering automatic threat detection and the subsequent initiation of passive interference, as well as composite armour plating, improved fuel systems, and the latest avionics and radio systems. Thanks to these modernised systems and components, the helicopter boasts significantly improved flight capabilities and operational performance, which in turn pushes full-lifecycle costs down.

Ulan-Ude Aviation Plant – is a production enterprise at Russian Helicopters. Its modern production and technological capacities enable it to quickly launch work on new rotorcrafts, create prototypes and launch series production. In the 75 years of its existence, it has produced over 8,000 aircraft. Today it specialises in producing Mi-8AMT (Mi-171), and the Mi-8AMTSh (Mi-171Sh) helicopters. /RA&MG/

RUSSIAN HELICOPTERS, (part of State Corporation Rostec),

is one of the global leaders in helicopter production and the only helicopter design and production powerhouse in Russia. Russian Helicopters was founded in 2007 and is headquartered in Moscow. The company comprises five helicopter production facilities, two design bureaus, a spare parts production and repair facility, as well as an aftersale service branch responsible for maintenance and repair in Russia and all over the world. Its helicopters are popular among Russian ministries and state authorities (Ministry of Defence, Ministry of Internal Affairs, Emergency Control Ministry), operators (Gazpromavia, UTair), major Russian corporations. In 2014 its IFRS revenues increased 22,8% to RUB 169,8 billion. Deliveries reached 271 helicopters.

Plan of the magazine «Russian Aviation & Military Guide» 2016

	Release dates	Additional distribution
«RA&MG» №01 (03)	January 20th February 15th	BAHRAIN INTERNATIONAL AIRSHOW-2016 *(Bahrain, January 21-23)* SINGAPORE AIRSHOW-2016 *(Singapore, February 16-21)* DEFEXPO INDIA 2016, *(India, February 17-20)*
«RA&MG» №2	March 14th March 27th	INDIA AVIATION 2016 *(India, March 16-20)* International Naval exhibition and the conference DIMDEX 2016 *(Qatar, 29-31 марта)* International exhibition of aerospace and military equipment FIDAE 2016 *(Chile, March 29th – April 3rd)*
«RA&MG» №3	April 16th	nternational Asian conference and the exhibition of systems and services for the defense industry DSA 2016 *(Malaysia, April 18-21)* International air show in North Africa MARRAKESH AIR SHOW 2016 *(Morocco, April 27-30)*
«RA&MG»№4	May 5th May 27th	International conference and the exhibition of the special rapid reaction forces SOFEX 2016 *(Jordan, May 10-12)* International aerospace exhibition and the conference ILA Berlin Air Show 2016 *(Germany, May 31th — June 5th)*
«RA&MG»№5	June 10th	International exhibition of arms, security technologies and instruments of defense EUROSATORY-2016, *(France, June 13-17)*
«RA&MG»№6	September 12th	nternational African exhibition of the defensive aerospace industry and security technologies Africa Aerospace and Defence 2016 *(South Africa, September 14-17)*
«RA&MG»№7	October 14th	International exhibition of the naval equipment and arms EURONAVAL 2016 *(France, October 24-28)*
«RA&MG»№8	October 31th	International exhibition of arms and the military equipment InfoDefence *(Indonesia, November 2-5)* International aerospace exhibition Air Show China *(China, November 1-6)* DUBAI Helishow, *(Dubai, November 7-9)*
«RA&MG»№9	November 15th	International exhibition of the Navy in Latin America ExpoNaval *(Chile, December 1-8)*
«RA&MG»№10	December 10th	The results of the export of Russian aviation and military equipment in 2016

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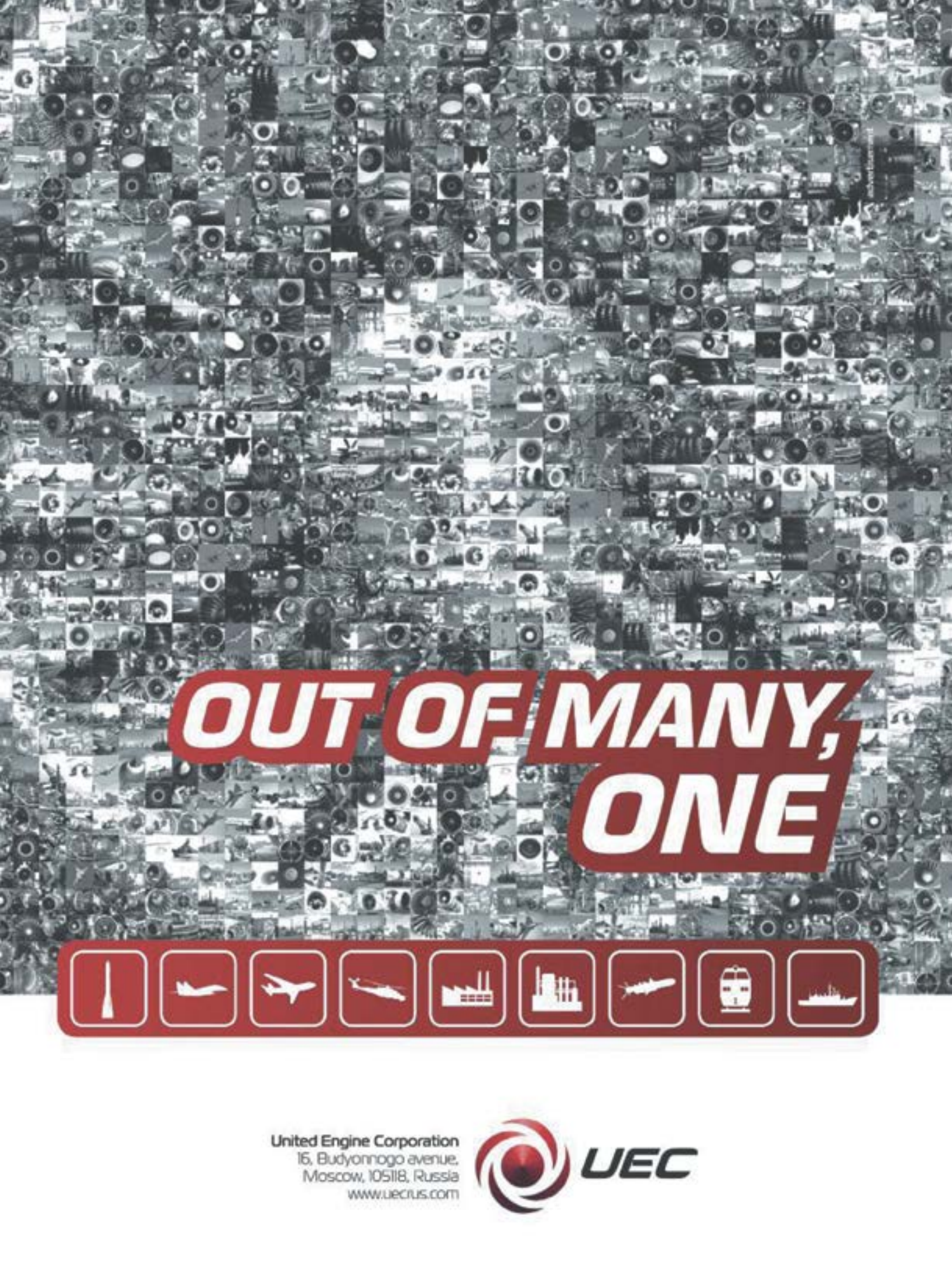

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