

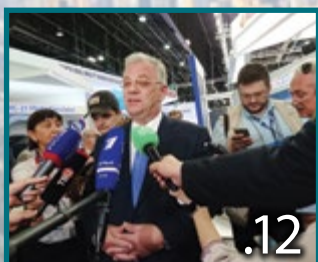
RUSSIAN AVIATION & MILITARY GUIDE

Special analytical export project of the United Industrial Publishing

№18 (49), December 2019

FSMTC OF RUSSIA

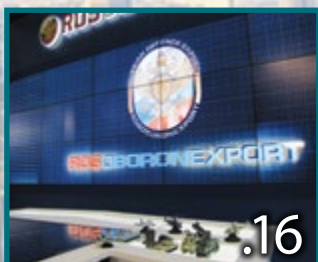
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EDITORIAL



Innovative Military, Security and Protection Technologies

It has become already obvious and undeniable that security is becoming increasingly important among the various values of civilization. Today, for any state, the ability to reliably and securely protect the territory, residents and values is a priority. Political situation in the world (conflicts, sanctions, threats of war and other) 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 nonending 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 safety, rivalry among sellers of weapons and defense systems increases in order to achieve such goals as increasing profits and market share. GDA 2019 in Kuwait shows the best world military innovations for Gulf countries and global market, which are the undisputed world leaders on price and quality in their segments.

This exhibition shows that it is not serious about how many weapons and planes you have, but quality and possibilities of every single one of them is fact what leads to victory on the battlefield and on the global market. 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 hitech products, solid aftersales service and proven reliability.

Russia has a wide product line that meets all the needs of this region and ready propose the best technology and the best price offers. Russia is honest and friendly partner for all countries, ready for mutual work.

Valeriy Stolnikov



SERBIAN MINISTER VISITED RUSSIAN HELICOPTERS

Serbian Defence Minister Alexander Vulin has visited 'Rostvertol' plant of 'Helicopters of Russia' holding of Rostec State Corporation during his working visit to Russia.



The Head of Defence Ministry had inspected the Mi-35M transport and combat helicopters manufactured by the Rostov plant for the Serbian Air Force under the contract signed with Rosoboronexport.

As part of his visit to the company, Alexander Vulin met with Rostvertol management and specialists of flight and engineering personnel being trained at the company.

In addition, the Defense Minister got acquainted with the production sites for the assembly of Mi-35 helicopters.

Mi-35M is the world's only universal combat helicopter, which, among effective fire missions, is able to transport up to eight soldiers with weapons, up to 1,500 kg of ammunition or other cargo inside the cabin and up to 2,400 kg of cargo on external sling, evacuation of the wounded, delivery of technical staff to the autonomous bases.

Round-the-clock and all-weather combat use of the helicopter provides the ability to perform combat missions of air support units of the ground forces at any time of the day and in all weather conditions.

The helicopter has significant high-altitude characteristics with the ability to perform takeoffs and landings on concreted and unpaved landing sites located at altitudes up to 4,000 m above sea level.

In addition, the successful design solutions used in the Mi-35M, provide the possibility of using the Russian helicopter in a wide range of physical, geographical and climatic conditions.



Participation in the 'Dakar-2020'

KAMAZ-master team has determined the drivers who will take part in the Dakar-2020 rally. The venue of the rally-marathon will be Saudi Arabia for the first time. The current champion of Dakar rally Eduard Nikolaev, the winner of the Silk road-2019 rally Anton Shibalov, as well as Andrey Karginov and Dmitry Sotnikov will represent Russia in the trucks category.

The 42nd Dakar rally starts on January 5th at the Red sea coast from Jeddah. The finish of the race is scheduled for January 17th in Qiddiya.

Currently, the process of the team preparation for the Dakar-2020 rally has entered the final stage. On December 5th and 6th in Marseille, France, there were initial technical checks and loading onto a ferry to send the equipment of the participants of the race to the Arabian Peninsula.

Recall, that starting 2020, the Dakar marathon rally changes its location. After ten years spent on the routes of South America, the organizers of the race signed a five-year contract with Saudi Arabia. This is the 30th country in the history of the Dakar rally to host the race.



According to the organizers, Saudi Arabia is an ideal place where the variety of landscapes allows to make an interesting rally raid route. Similar to the geographical diversity, three cities to be visited by the sportsmen are also diverse and unique. Jeddah symbolizes the

deep historical roots of the country. The capital Riyadh demonstrates the strength of the Kingdom, and Qiddiya is evidence of the fact that the development of the country is directed into the future. It is the city in construction, the city of entertainment, sports and art.

Bringing Cryptographers to Russia

Kryptonite (a joint venture of X Holding and Rostec State Corporation) will host the international Security of the Future: Cryptography 2021 conference, which will be held on April 20th, 2020. Along with a private meeting of international specialists in cryptography and cybersecurity (held April 21-24), the conference forms a 'cryptography week' in Russia, which will welcome experts from around the world.



The Security of the Future: Cryptography 2021 conference will bring together representatives of leading countries in world cryptography and information security: from Russia, the UK, the USA, Germany, France, Japan, China, South Korea,

etc. The delegations will include cryptographers, representatives of government agencies in the field of communications and technology, as well as employees of large technology brands (including Microsoft, IBM and other corporations).

'Three out of four acting national cryptography standards in Russia have already been adopted at the international level, and we expect that the rest will be adopted as part of the work of the 27th subcommittee. The quality of our cryptographic standards is widely recognized in the world and confirms our leadership in this direction', said Vasily Shishkin, the head of the cryptography laboratory at the Kryptonit Research and Production Company.

Representatives of Kryptonite presented the conference program to the SC 27 ISO organizing committee at a meeting of the committee working groups in Paris, which was held from 14th to 18th of October. Later, a city in Russia that will host a 'cryptography week' in April 2020 will be selected.

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KA-32 HELICOPTERS FOR FIREFIGHTING

Russian Helicopters Holding Company (part of Rostec State Corporation) has delivered three Ka-32A11BC multipurpose helicopters to Turkey. The machines will be used in firefighting.

In July 2018 contracts were signed with KAAAN Air (Turkey) for delivery of three Ka-32A11BC multipurpose helicopters. Currently all three were handed over to the customer. The rotorcraft were purchased primarily for firefighting purposes.

‘Ka-32A11BC is the helicopter with the best technical equipment for firefighting missions’, noted Andrey Boginskiy, CEO of Russian Helicopters Holding Company. ‘This rotorcraft is an admitted leader in its class, and it is capable of solving a wide range of tasks. We are looking forward to further fruitful cooperation with our Turkish partners as far as delivery and after-sales support of helicopters are concerned.’

‘Russia has top-tier competence in civil helicopter industry. Depending on the types of tasks and missions, we are ready to deliver a variety of helicopters to our Turkish partners’, said Viktor Kladov, Director for International Cooperation and Regional Policy at Rostec. ‘Right now Turkey is interested in expanding its fleet of firefighting aircraft, and Rostec intends to continue developing its cooperation with Ankara in this field. We estimate the current Turkish market for this type of helicopters as several dozens of machines.’

The Ka-32A11BC multipurpose helicopter is designed to perform complex firefighting operations, special search-and-rescue and high altitude construction operations, to transport cargo inside the fuselage and on the external sling, to log forest, transport patients and evacuate injured persons. The co-axial scheme and absence of the tail rotor ensure compactness, high power-to-weight ratio and maneuverability, as well as exceptional controllability of the helicopter. Ka-32A11BC has a high load lifting capacity up to 5 tons of cargo on the external sling. The assigned service life of Ka-32A11BC is extended to 32,000 hours which guarantees lower operating costs.

The firefighting version of Ka-32A11BC can be equipped with various fire extinguishing systems, including Bambi Bucket and Simplex type, as well as a horizontal firefighting system. The helicopter is capable of extinguishing flames on the highest floors of high rise buildings and on oil-and-gas industrial facilities. The Ka-32A11BC has been acknowledged by experts as one of the world’s best firefighting helicopters; it is a symbol of the Global Helicopter Firefighting Initiative (GHFI) – a program intended to improve the operating efficiency of specialized firefighting helicopters.

Russia at Dubai Airshow 2019

Rosoboronexport JSC (part of Rostec State Corporation) presented the latest Russian-made Air Force, Air Defense and electronic warfare equipment at Dubai Airshow 2019, which was held from November 17 to 21 in Dubai, United Arab Emirates.



‘The Middle East is a key region for Rostec. Traditionally, the demand for Russian-made military equipment is strong here and interest in high-tech civilian and dual-use products has markedly increased in recent years. At Dubai Airshow 2019, Rostec holdings, in addition to new aircraft and helicopters, showcased the latest Russian systems for countering drones and other air attack weapons. In particular, along with well-known ‘hard-kill’ air defense systems, we offer ‘soft-kill’ electronic warfare equipment mounted on various platforms, including the high-mobility systems Sapsan-Bekas, Kupol-PRO and Pishchal-PRO. These systems can be successfully used to protect military and industrial facilities, civilian infrastructure against drone attacks,’ said Rostec General Director Sergey Chemezov.

The Dubai Airshow has a long history. It has been held since 1986 and today is rightly considered one of the most representative international aerospace exhibitions. The exhibition has held steady among the world’s largest aerospace events along with MAKS (Russia), Paris Air Show (France), Farnborough International (United Kingdom) and Air Show China (China).

‘Rosoboronexport has taken part in all Dubai Airshows in its history. It is pleasant to note that the scale of the exhibition is steadily increasing and interest in our products is growing in parallel. We’re doing our best to justify increased attention by partners and surprise them

with unique Russian defense developments,’ said Rosoboronexport Director General Alexander Mikheev. ‘This year was no exception: we showcased there the latest Su-57E fifth-generation fighter, Mi-28NE and Mi-171SH helicopters modernized drawing on lessons learned in fighting, as well as unique air defense weapons, including the upgraded Pantsir-S1M SPAAGM system. Space-related topics, too, has not been ignored: we were presenting a new Sula radar there to monitor space objects.’

At Dubai Airshow 2019, Rosoboronexport was the organizer of Russia’s single display with a total area of more than 750 square meters. In addition to Rostec and Rosoboronexport stands, eight leading Russian holding companies producing Air Force, Air Defense and electronic warfare equipment showcased their products, including United Aircraft Corporation (UAC), Russian Helicopters, United Engine Corporation (UEC), NPO High-Precision Systems, Almaz-Antey Concern, Shvabe and others.

Foreign delegations were expected to take a keen interest both in new products having significant export potential and in the Russian bestsellers in the world market: the legendary S-400 long-range air defense missile systems, Buk-M2E and Viking SAM systems, Ka-52, Ka-29, Mi-35M, Mi-26, Mi-38 and Ansat helicopters, Su-35, MiG-35, Su-32 aircraft, as well as battle-proven air-launched precision-guided munitions. Irkut Corporation brought to

the exhibition a full-scale model of the Yak-130 combat trainer.

The products offered to visitors of the exhibition by Rosoboronexport were presented in the form of a multimedia catalog. Interactive touchscreens allowed visitors to the company’s stand to get a detailed description of weapons and military equipment, their performances, see photos of full-scale hardware, as well as videos on their use in real combat conditions.

On November 18, at Dubai Airshow 2019, Rosoboronexport held a public presentation ‘Russian systems for countering unmanned aerial vehicles.’

‘We expected great interest in Russian counter-drone developments. Unfortunately, the Middle East was one of the first regions in the world to learn about the reality of the threat posed by small and ultra-small drones that fell into the hands of terrorists. Today Rosoboronexport presents a wide range of assets capable of protecting any facilities and territories against this new threat,’ added Alexander Mikheev.

Rosoboronexport has closely followed the trends in the world arms market, including in the Middle East, a vital region of the world for Russia. At Dubai Airshow 2019, along with a demonstration of the best Russian weapons, the Company told its partners about the whole variety of forms of mutually beneficial cooperation, our unique offers in the field of technology transfer, infrastructure projects, including in the space sector.

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COOPERATION BETWEEN VR-TECHNOLOGIES AND KRASAEROSCAN

During the International Aviation and Space Salon MAKS-2019, VR-Technologies – innovation design office of the Russian Helicopters Holding Company (part of Rostec State Corporation) – signed a cooperation agreement for development and serial production of VRT30 unmanned aerial system (UAS) with KrasAeroScan.

The subject of the agreement is the establishment of partnership and efficient and mutually beneficial cooperation for the development of technologies of unmanned aerial systems use in the energy, oil and gas, construction, forestry, agricultural, machine-building and utility industries of Russia. The agreement provides for the upgrade of VRT30 convertiplane for its effective operation in the climatic conditions of Eastern Siberia, the Far East and the Far North. VR-Technologies, in cooperation with KrasAeroScan, organized serial production of VRT30 UAS, as well as its warranty handling and maintenance.

'The agreement we signed during MAKS-2019 confirms the relevance of promising UAS and UAV developments for improving the quality of operations carried out with the help of drones, as well as for increasing their capacity. We welcome the cooperation with the leader of the Krasnoyarsk Krai in the field of engineering surveys carried out using UAVs so as to consolidate the expertise of two successful companies and create a product that the market definitely needs,' said Director General of VR-Technologies Alexander Okhonko following the contract signing.

'On August 28 there were 18 areas on the UAV operation market. For successful market penetration, the product, first, should have a quality payload for remote sensing of the earth and, second, be a reliable aircraft that can operate in harsh climatic conditions. Very few companies are able to create a vertical take-off and landing UAV with a desired payload that can be used in the turbulent terrain, low temperatures and sudden wind gusts. VR-Technologies has all the resources to create such a UAV. KrasAeroScan, for its part, provides operating experience and request for specific technical conditions. Working with VR-Technologies, we hope to answer all challenges of the market,' said Director General of KrasAeroScan Dmitry Chanchikov.

Under an open-ended agreement, the parties decided that it is possible to organize the experimental operation of the VRT30 convertiplane when implementing KrasAeroScan production programs. The areas of cooperation include engineering and geodetic surveying, control of cadastral land boundaries, forest fire monitoring, archaeological investigations, monitoring of infrastructure elements of different types, search and rescue, and other promising areas.

The Defense Minister of India visits UEC Enterprise

A delegation led by the Defense Minister of India Rajnath Singh paid a business visit to St. Petersburg at the UEC-Klimov enterprise, a member of the United Engine Corporation of Rostec State Corporation.

During the visit the Defense Minister of India was presented with the main product line of the enterprise and the key stages of the production process. The guests visited the mechanical line, assembly and testing workshops.

Rajnath Singh inspected the TV7-117ST turboprop engine at the 30th test facility. The rated power of this engine is 3100 hp. at maximum take-off mode and 3600 hp - at high emergency mode. The power plant includes a new AB-112 prop of increased traction. The latest modification of the TV7-117ST - the TV7-117ST-01 engine - is the base for the power plant of the Il-114-300 passenger aircraft.

In the assembly workshop, members of the delegation got acquainted with the production of VK-2500 and TV7-117V helicopter engines, saw one of the most important developments of the enterprise - the RD-33MK airplane engine for a sea-based jet fighter. The engine is adapted for long-



term operation in a marine climate, has an increased traction, thanks to which the fighter can take off from the deck of an aircraft carrier without the use of a launch catapult.

During the meeting with the management of the enterprise, Rajnath Singh praised the research and development potential of the UEC-Klimov, the quality and scale of the contemporary production complex.

Yak-130 performed aerobatics at Dubai Airshow-2019

Russia's United Aircraft Corporation (UAC) showcased the latest Russian aircraft production programs at the Dubai Airshow (UAE), which took place November 17-21, 2019. For the first time at this exhibition, the Yak-130 combat trainer was represented on both on the static display and in the flight program.

Commenting on the corporation's participation in Dubai Airshow-2019, UAC CEO Yuri Slyusar said: 'For us the Middle East is one of the priority regions. Within this context, we are discussing both combat and civilian aspects. Regarding the combat aspect, we introduce the beginning of deep modernization project of Yak-130 aircraft: we expand its combat capabilities making this aircraft not just a combat trainer, but more combat aircraft. We are in a position to customize its enhanced combat capabilities to meet expectations of our customers in the Middle East, taking into account specific combat missions to solve in this region. Yak-130 is good for training pilots for further combat aircraft of fourth and fifth generations, and we will continue to improve its training functions'.

'Regarding the civilian aspects we are particularly considering possibilities of new variants of cooperation for MC-21 production. This is a mass serial production airplane, and international cooperation could increase its planned production rates from 70 to 120 airplanes per year, and it would also enhance its competitiveness', - explained Yuri Slyusar.

The head of UAC took part in the official meetings and negotiation program of the national delegation, also accompanied the UAE leaders on their tour through the Russian exposition.

During the business days, the UAC delegation led by Mr Slyusar held sessions on the CRJ929 wide-body aircraft program with potential suppliers of aircraft engines from the world's leading manufacturers - General Electric and Rolls-Royce. These negotiations followed similar meetings held earlier by the Chinese partners of the joint project.

Discussions with Mubadala Investment Company proved fruitful with many areas identified for potential collaboration. Various areas of cooperation, including possible industrial ones were discussed with leadership of Alsalam company in the framework of joint marketing efforts to supply civil aircraft to the Middle East.

One of the program's key events was the meeting with UAC main Indian partner Hindustan Aeronautics Limited. Industrial cooperation activities on the Ilyushin IL-114 program was among the numerous agenda points. Russian part continued negotiation the Be-200 promotion with the Egyptian colleagues and its certificate validation in Egypt. Other negotiations also were held during the air show.

The Yak-130 combat trainer showed its high maneuverability during the flight display every day in the sky of Dubai. The aircraft crew consisted of the test pilot Vasily Sevastyanov and the test navigator Sergey Kudryashov, they performed advanced aerobatic figures such as Barrel roll, Humpty-Bump, inside loop, spins and others.

The Corporation represented models of modern Russian aircraft MC-21, Superjet 100, Su-30SM, Yak-130, MiG-35, Su-35, Su-57E, Be-200, Be-103, Il-78MK-90A, Il-76MD-90A, Il-112 and Il-114-300 on the corporate stand No. 770. UAC also offered to the guest of the exhibition a new multimedia fullscreen product-line presentation with the innovative reality graphics.

Dubai Airshow is one of the largest international aviation and space exhibitions, in 2019 it was held for the 16th time. The exhibition was visited by a significant number of specialists not only from the Middle East, but also from Africa and the Asia-Pacific region.

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2019-2038 MARKET OUTLOOK

United Aircraft corporation (UAC) has delivered new long range civil aircraft market forecast. The whitepaper document is intended for the mainstream audience and serves for harmonization of the Russian aviation industry opinions as referred to the core markets and also for signification of the Corporation contribution to the international aviation community references coordinates formation.



The 2019-2038 Market Outlook booklet concept differs from the relevant documents which the Corporation has delivered in the previous years, as it contains corporate vision revealing supply and demand ratio pitfalls covering different market segments relative to world regions and key countries comprising Russia, China and India in addition to the vital market statistics.

The civil aircraft quantitative demand appraisal for the forecasted period is executed on the basis of the genuine mathematical imitation model, which considers many parameters, comprising but not limited to macroeconomic and demographic arguments, air transportation dynamic and volume data, current fleet condition, world production capacities, sale, purchase and lease deals as well as state investment programs records and miscellaneous commercial factors.

Narrowbodies of 166-200 seats capacity will be in the main demand stream. The market pull for the such aircraft is forecasted at 20.5 thousand level, which is in excess to all other market segments. The total demand in raw numbers is estimated in amount of 44.3 thousand airliners or 6.35 USD trillion if calculated in the 2019 catalogue prices.

The Russian segment share is equal to 2,9% in monetary and 3,3% in quantitative terms of the world market. 166-200 seater narrowbodies segment will overtake the majority of the local aviation carriers deliveries (630 tails estimate). Maximum quantitative demand geographical location-wise is forecasted in China (9,1 thousand tails), Asia-Pacific (excluding China and India) (7,9 thousand aircraft), European (8,3 thousand liners) and North American (8,2 thousand units) regions.

The 2019-2038 Market Outlook booklet contains detailed quantitative data regarding the global commercial aircraft market segments actual state and development trends, as well as a regional chapter that provides a detailed information on Russia, China, India, countries of the CIS, Asia-Pacific, European, Latin American, Middle East, North American and African regions.

Radar to Detect Miniature Drones

'Ruselectronics' Holding of Rostec state Corporation has developed a radar station to detect small-size drones at a distance up to 7.5 km. The equipment is built entirely on the domestic electronic component base and has no analogues in Russia.

The equipment is a multi-channel Ka-band radar, characterized by small dimensions, equal to 325 × 240 × 230 mm. The direction finder digital repeater is placed on a rotary device that provides visibility in all directions. The station can be controlled manually from a laptop or automatically.

'The dangers that drones can pose are becoming increasingly obvious. Small-size drones are able to conduct surveillance, reconnaissance, carry explosives or other weapons and serve as a means of attack. Drones can act alone or as part of a 'swarm of drones.' And it is not only about special drones manufactured in industrial conditions. It can be a toy copter from a children's store or a home-made apparatus. Traditional radar methods do not provide reliable detection of unmanned flying vehicles with a small reflective surface. The development of our holding 'Ruselectronics'



solves this problem successfully. Undoubtedly, the new development will be in demand among both special and civilian customers', - commented the Executive Director of Rostec Oleg Yevtushenko.

Up to date, the first samples of equipment have been manufactured and field tests of the radar station have been carried out.

Russian security products at Interpolitex 2019

Rosoboronexport JSC (part of the Rostec State Corporation) took part in the 23rd International State Security Exhibition, Interpolitex 2019, which was held from October 22 to 25 at the VDNKh All-Russian Exhibition Center (Pavilion No. 75) in Moscow.

At Interpolitex 2019, Rosoboronexport undertook active efforts to promote the entire range of security products for law enforcement agencies, counter-terror units and other security agencies.

'At this year's Interpolitex, we expected to see representatives of a wide range of law enforcement and special agencies of the partner countries from Southeast Asia, Latin America and the CIS. Here they had an excellent opportunity to get a closer look at the armaments, equipment and software/hardware solutions offered by Russian manufacturers. Many of the products presented had been successfully used by Russia's law enforcement services, including the Federal Security Service (FSB), the police, the Russian Guard, the Border Guard, as well as private security companies. Rosoboronexport was ready to negotiate on the supply of military, dual-use and civilian products to interested foreign customers on mutually agreed terms,' said Alexander Mikheev, Director General of Rosoboronexport and Deputy Chairman of the Russian Engineering Union.

The exhibition was held in three halls of Pavilion No. 75 and in an outdoor area, where full-scale special equipment was on display. The total exhibition area exceeded 25,000 square meters. Rosoboronexport's stand was located in Hall 'A'. More than 100 items of weapons and military equipment developed and manufactured by Russian defense enterprises were being exhibited here. At the company's stand, you could test your skills in shooting Kalashnikov assault rifle and MP-446 Viking self-loading pistol mockups on the SKAT shooting simulator.

Today, promotion of the state and infrastructure security tools and services in the world market is a driv-

er of Rosoboronexport's development. Russian industry has excellent competencies in developing and manufacturing products to combat terrorism, extremism and organized crime, protect high-priority and critical infrastructure facilities, extended borders, as well counter-UAV systems, electronic warfare and secure communications equipment.

In addition, Rosoboronexport is actively developing the civilian and service weapons market segment. The partners' security agencies are considering our commercial offers on various versions of Saiga carbines, MP-18, MP-135, MP-156, MP-27 and MP-43 rifles, Viking pistols designed and manufactured by Rostec's Kalashnikov Concern, ORSIS T-5000M rifles, Vepr carbines, cartridges for them and a variety of attachments. Foreign customers' interest in civilian versions of the SVD sniper rifle under the Tiger brand is also noticeable. Most of these models are showcased at Interpolitex 2019 by their manufacturers.

Most of the equipment operational with Russian special forces units has been battle-tested. In addition, the adopted solutions to ensure security in crowded places and in settlements during the 2018 FIFA World Cup proved successful, which was noted in official reports of international organizations and by representatives of the security agencies of the countries that participated in the championship.

During Interpolitex 2019, the Collective Security Treaty Organization (CSTO) held the first International Military-Economic Conference titled 'Military-Economic Cooperation of the CSTO Member States: Development Trends, Problems and Prospects.' Rosoboronexport took an active part in it.

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PUTTING THE SOYUZ MS-15 MANNED SPACECRAFT INTO ORBIT



The RD-107A / RD-108A engines manufactured at the Samara enterprise of the United Engine Corporation of the State Corporation Rostec ensured the successful launch of the Soyuz MS-15 transport manned spacecraft with a crew of 61/62 long-term expedition to the International Space Station. The main crew included the cosmonaut of Roscosmos Oleg Skrypochka, NASA astronaut Jessica Meir and a spaceflight participant from the UAE, Hazzaa al-Mansouri. The launch of the Soyuz MS-15 manned transport spacecraft, which was launched into orbit by the Soyuz-FG integrated launch vehicle (ILV), took place on September 25th at 16:57 Moscow time from platform No. 1 of the Baikonur Cosmodrome. PJSC 'Kuznetsov' manufactured marching engines of the first and second stages of RD-107A/RD-108A, operated faultlessly. A few hours later, at 22:43 Moscow time, the Soyuz MS-15 spacecraft docked in the normal mode to the docking station of the Zvezda service module of the Russian segment of the International Space Station. The launch of the Soyuz-FG ILV, designed for manned launches, was the final in the history of this rocket. Starting from next year, expeditions to the ISS will be sent to the Soyuz-2.1a rocket launcher, on which a new Russian digital control system is installed. For launches of launch vehicles of the Soyuz-2 family, site No. 1 will be modernized. 70 launches of Soyuz-FG ILV have been carried out since 2001.

MC-21-300 CERTIFICATION FLIGHTS



Flight test experts of the European Union Aviation Safety Agency (EASA) completed the third flight session of MC-21-300 certification program. Initially EASA experts worked with their Russian colleagues on the flight simulator. Subsequently the EASA crew and the Yakovlev Design Bureau (a branch of Irkut Corporation) performed a series of flights on the MC-21-300.

Increasing Export Volumes of Non-Military and Service Weapons

On September 17, 2019, in the framework of the research and practice conference, devoted to the 100th anniversary of Mikhail Kalashnikov, JSC Rosoboronexport, part of the Rostec State Corporation, signed an agreement on cooperation and partnership with Non-profit Organization 'M.T. Kalashnikov Union of Russian Gunmakers'.

The signing of the document aims to increase the volume of exports to the external market of non-military and service weapons, as well as cartridges for them. Besides, the agreement shall serve the purpose of better understanding between the main Russian exporter of special products and manufacturing enterprises constituting the Union of Gunmakers on the issues of foreign customers' needs and market trends.

'The market of non-military and service weapons is the new area of our work. Nevertheless, by now Rosoboronexport has already fulfilled one contract on this subject matter and has prepared over 30 commercial offers to partners from 20 countries in the amount of around 2.5 billion roubles. I am confident that by means of our joint efforts with the Union of Russian Gunmakers we will be able to increase considerably the share of Russian products in this fairly concentrated market segment and to support our enterprises,' said

Rosoboronexport's Director General Alexander Mikheev, who is also holding position of deputy chairman of the Union of Russia's Machine Builders.

Rosoboronexport undertakes proactive marketing work in the world market on the issue of exporting non-military and service weapons of Russian production. Potential foreign customers are currently considering commercial offers on various modifications of the Saiga carbines, guns MR-18, MR-135, MR-156, MR-27 and MR-43, Viking pistols developed and produced by the Kalashnikov Concern, part of the Rostec Corporation, rifles ORSIS T-5000M, Vepr carbines, cartridges for them and various accessories. Foreign customers are also explicitly interested in civilian modifications of the Dragunov sniper rifle under the trademark of Tigr.

Apart from combat systems, Rosoboronexport was given the right to export non-military weapons in the interests of law-enforcement agencies of partner nations. This happened in 2017 after the amendment of the



Russia law 'On Weapons'. This created the most comfortable conditions for concluding integrated contracts on the delivery of products, and gave an opportunity to the company's partners to purchase the whole spectrum of Russian weapons, which they need, from a single reliable exporter.

The practice of the longstanding work of Rosoboronexport shows that the company has all the necessary competencies to export not only military equipment and materiel, but also civilian, as well as dual-use products. The main potential customers for non-military and service weapons are the police and special services of foreign countries, as well as numerous shooting sports and hunting associations.

Rostec Development Strategy

Rostec State Corporation is updating the development strategy until 2025 in connection with the incorporation of the United Aircraft Corporation (UAC). Be reminded that the decree on the transfer of 92.31% of UAC shares to Rostec capital was signed in October 2018. The transfer is carried out in stages and should be fully completed within a year and a half.

The strategy will be updated according to the changes in markets and macroeconomic factors that have occurred since 2015 – from the moment of the adoption of the Corporation's development strategy until 2025. It is planned to clarify the target indicators of the strategy in connection with the accession of the UAC as part of the work.

Updating the development strategy is also associated with the transition of the State Corporation to international financial reporting standards. As a result, the level of transparency and openness of the compa-



ny will increase, which opens up new opportunities for doing business and developing partnerships in Russia and in the world.

From 2015 to the present, Rostec has been implementing the strategy according to the main parameters (revenue, net profit, share of civilian

products, EBITDA and others) within the limits of the risk appetites, as the Corporation notes.

Strategy 2025

According to the strategy approved earlier, by 2025 Rostec plans to enter the top ten largest global industrial corporations in terms of revenue, achieve a growth in the share of civilian products in revenue above 50%, and also increase labor productivity to the level of the best quarter of world players. In addition, the unchanging goal of the Corporation is to unconditionally fulfill the state defense order.

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FSMTC of Russia

Dmitry Shugaev:
'Russian arms exports to the Middle East remain fairly stable'

In accordance with the law of the Russian Federation, activities in the field of military-technical cooperation (MTC) with foreign countries shall be controlled and supervised by the Federal Service for Military-Technical Cooperation (FSMTC of Russia) that, among other things, shall ensure implementation of basic principles of the Russian government policy in the field of MTC. Dmitry Evgenyevich Shugaev, the Director of FSMTC, discusses main directions and tendencies in development of military-technical cooperation between the Russian Federation and Middle East countries, the peculiarities of Russian military purpose product exporters' activities at the present stage in his interview to our magazine.

- Minister Shugaev, many countries need defense exports to capitalize on the economy of scale effect and make their systems more affordable. At the same time there is a considerable political component to arms trade. As for Russia is it more of a political or a commercial issue today?

– Well, the military-technical cooperation (MTC) is in essence a special area where economic and political interests of a country intertwine. It is the same for the majority of the countries no matter whether they export or import military purpose products (MPP). The economic aspect of MTC is certainly extremely important. Along with the scale effect, which you have aptly mentioned, for any country, not excluding Russia, successful military-technical cooperation contributes

to the federal budget and helps us modernize the national industry. It is no secret that export contracts ensure work-load for domestic industrial enterprises all over our country increasing production and creating jobs. Importantly, global competition of defense producers forces them to analyze success stories of rivals as well as the requirements of their partners so that they can better understand global industrial and technological trends.

At the same time even from the economic point of view the military purpose products' market is substantially different from other global markets such as raw materials, end-goods and services. First, fluctuations are quite rare in global arms trade while military purpose products are traditionally in high demand. However, the demand for arms is usually subject to the influence of

such factors as national armies' modernization programs, importer states' overall economic stability and, in particular, funds allocated to purchase arms. So, evidently, even in economic terms arms market is influenced by both economic and political factors.

And, of course, MTC is an extremely 'sensitive' area. Both for the Russian Federation and for any other leading exporter of military purpose products it remains an important foreign policy tool.

Therefore, it will be correct to say that in pursuing our military-technical cooperation with foreign states Russia proceeds from its strategic interests that have both an economic and a political component.

– What are the principles, the system of cooperation in the field of MTC is based on today?

– Today the system of military-technical cooperation of Russia is built as a vertical relationship where Rosoboronexport is the only exporter of final military purpose products. Concurrently, there is also a number of entities in the field of military-technical cooperation of Russia that are authorized to provide service of the equipment previously purchased by customers, to upgrade it and to supply spare parts for this equipment. These, in particular, include such

integrated structures of the defense industry as the United Aircraft Corporation, the United Shipbuilding Corporation, Almaz – Antey Air and Space Defense Corporation and others. They obtained this right to service their equipment supplied to foreign customers as they represent defense industry itself, they embrace the factories that manufacture spare parts, components, etc.

Federal Service for Military-Technical Cooperation is an agency that controls and supervises all the activities related to military-technical cooperation and issues licenses. From strategic point of view the FSMTC of Russia plays the role of government policy 'conductor' in the field of military-technical cooperation and acts as a controlling and licensing agency at the same time.

However, all decisions regarding final supplies anyway are made at the highest level in Russia. That is, either an appropriate ordinance or instruction of the President or the Russian government should be issued. That's why I call it a 'vertical type of relationship.'

– How can you describe the development and dynamics of Russian activities in the field of MTC?

– First of all, I'd like to note that Russia is second in the list of world top exporters of military purpose products. It is not a secret that part of our export is made up by aviation equipment; export of the equipment related to aviation varies in the range of 40-50% of the total volume. Of course, we positively appreciate this fact, and we wish exporters of other weapon types to achieve these figures as well.

At the same time we understand, that the market of military purpose products (MPP) is a very specific market having cyclic nature. A number of factors should be taken into account, including rearmament programs of armies, financial solvency of countries depending on their general economic health. Therefore, we do not expect any abrupt jumps, we are building long-term relationships that allow us to speak with confidence about stable growth of export supplies.



In the past five years, Russian arms exports to the Middle East have stood at more than \$2 billion annually, or between 10% and 20% of the overall arms exports. The region continues to account for between 10% and 20% of Russia's total arms exports portfolio.

It is important to participate in long-term programs, providing technical support to our clients and creating maintenance stations with an understanding that many of our

clients aspire to improve their own industry, for example.

– Could you advise our readers on the share of the Middle East in the geographic breakdown of



Russian arms exports to the Middle East remain fairly stable. Just like with any other region, the figures rise and fall periodically owing to cyclic demand for military products. Nevertheless, Russia's cooperation with Middle Eastern countries has never ceased over the past 15-plus years.



Russian defence exports? Has this share been increasing as compared to other regions? What percentage of Russia's overall defence portfolio do Middle Eastern countries currently account for?

– Russian arms exports to the Middle East remain fairly stable. Just like with any other region, the figures rise and fall periodically owing to cyclic demand for military products. Nevertheless, Russia's cooperation with Middle Eastern countries has never ceased over the past 15-plus years.

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– What is the share of aviation equipment in Russian arms exports to the Middle East? Could you name any combat aircraft types that are particularly popular in the region?

– The Middle East is particularly interested in aircraft and air-defence systems; each of these two components accounts for some 40% of the overall volume of orders we have coming from that region. We offer virtually the entire range of advanced weapons systems, including MiG-29, Yak-130 and Su-35 fixed-wing aircraft; Mi-28 and Ka-52 helicopters; advanced air-released munitions; S-300PMU2 and Antey-2500 SAM systems; Tor-M2K, Buk-M2E and

Pantsir-S1 SAM systems; command and control systems and simulators.

– How is Russia's cooperation with Turkey progressing in terms of aviation equipment? Can we expect any specific progress with the talks on deliveries of Su-35 and/or Su-57 fighters to that country? Could you tell our readers about the projects to jointly develop a Generation 4++ fighter and jointly work on a Generation 5 fighter with Turkey?

– Russia is prepared to look into the possibility of supplying Turkey with Su-35 fighters, provided that Turkey officially expresses its interest in this type.

As for the possibility of Su-57 deliveries to Turkey, this can only be discussed after the Russian Armed Forces' initial demand for this fifth-generation fighter has been met.

Speaking of the advanced aircraft development projects, the two countries are currently in technical consultations on the Generation 4++ fighter and in initial consultations on the possible Generation 5 fighter.

As you are well aware, we have every capability to make it happen. Turkey is currently actively developing its defence sector, and it has achieved pretty good results.

Given the current manufacturing competencies with regard to our fifth-generation fighter, Russia could take part in such a project, including work on a number of associated

aircraft systems. We are discussing this possibility with our partners, but it is too early to make statements as to the any substantive talks on the development of a new Russo-Turkish warplane.

– When do you think Turkey could make a final decision on procuring additional S-400 systems as part of an option to their current contract? Will Turkey's talks with the USA on the F-35 programme affect the talks with Russia on a new S-400 contract? When will Turkish military specialists complete their S-400 training? How great a share of S-400 production localisation is Russia discussing with Turkey?

– The S-400 Triumf delivery contract with Turkey is underway and strictly on schedule. The Turkish specialists are expected to have completed their training by year-end. Under the bilateral agreement, Turkey has until 2030 to pay for the deliveries.

There is currently no joint S-400 production in Turkey, but this is a possible cooperation format for the future.

Turkey will make its own decision on procuring additional S-400 systems. We hope this will happen in the near future, and that the two countries will sign a new contract.

– Is there a Middle Eastern interest in Russian anti-UAV systems in the aftermath of what happened to Saudi Aramco? Are Russian-designed solutions popular with Middle Eastern countries?

– Following requests from our Saudi partners, Russia has held a number of technical presentations for our anti-UAV systems. We are

currently awaiting a decision from our partners.

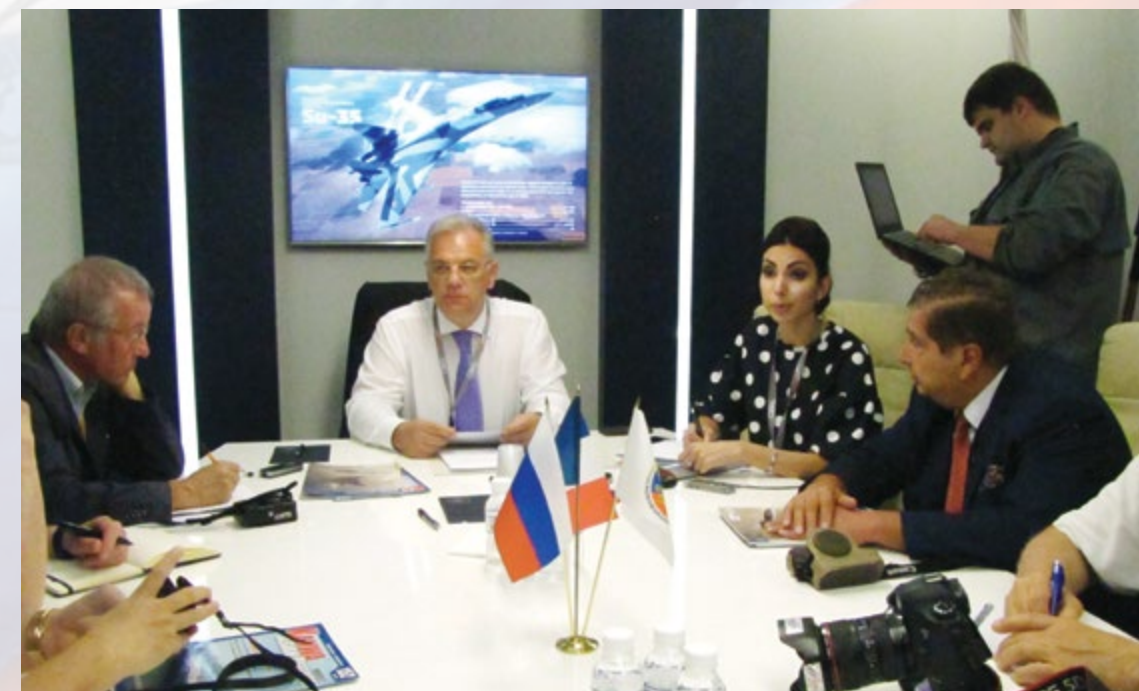
Given an interest in anti-UAV systems from our Middle Eastern partners, this year's Russian expositions at Middle Eastern defence exhibitions featured high-mobile anti-UAV systems such as Sapsan-Bekas, Kulon-PRO, Taran-PRO and Pishchal-PRO.

– Are Middle Eastern countries interested in Russian unmanned aerial systems?

– They are indeed. We are currently promoting our Orion-E system. The Orion-E vehicle has a take-off weight of 1 tonne, a maximum payload weight of 200 kg and a maximum endurance of 24 hours. This system, which can operate day and night, can carry specialised payloads for imagery, radar and ELINT missions. The modular, open-architecture system can be missionised to meet the operational environment and current objectives.

/RA&MG/

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THE BEST FROM RUSSIA

Rosoboronexport: 19 years of the success on the world market

On November 4, 2019 there was the 19th anniversary since the establishment of JSC Rosoboronexport (part of the Rostec Corporation). The company was created in 2000 in line with a decree of the President of the Russian Federation.

Rosoboronexport is the only state-owned arms trade company in the Russian Federation authorized to export the full range of military and dual-purpose products, technologies and services. It is a subsidiary of the Rostec Corporation. Founded on 4 November, 2000, now Rosoboronexport is one of the leading world arms exporters to the international market. Its share in Russia's military exports exceeds 85 percent. Rosoboronexport cooperates with more than 700 enterprises and organizations in the Russian defence industrial complex. Russia maintains military technical cooperation with more than 100 countries around the world.

'R'osoboronexport continues to strengthen its positions in the world arms market. Irrespective of fierce competition, in the year 2019 we have already managed to supply our products to 43 countries to the amount of 11 billion dollars, signed over 800 contracts for future deliveries. And these are not the final results as we have two more months ahead until the end of the year. Simultaneously, the portfolio of orders of the company keeps at the level of nearly 50 billion dollars, which guarantees the load for Russian defence industry enterprises for several years ahead,' said Rosoboronexport's Director

General Alexander Mikheev, who is also holding position of deputy chairman of the Union of Russia's Machine Builders.

Rosoboronexport started to promote for cross-border sales a number of outstanding types of weapons and military equipment, which potentially may become bestsellers in the world market. They include the Su-57E multipurpose fighter of the fifth generation and helicopters Mi-28NE and Mi-171SH, which were modernized with the account of the experience of their engagement in combat operations. For the equipment of personnel of the partners' land forces, special operations and anti-terrorist units, the company has received an opportunity to supply the whole line of the Kalashnikov assault rifles of the newest 'two hundredth' series, including those using NATO standard cartridges.

This year Rosoboronexport offered to foreign customers the new Russian multiple launch rocket system (MLRS) Tornado-S with the range of fire of up to 120 kilometers, new projectiles to MLRS and rounds for tank guns, mobile complex of missile weapons 'Club-T', the 'Rubezh-ME' coastal tactical missile system and a number of other types of weapons, which are very much demanded in the market. The majority of them



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were exhibited at the largest international exhibitions of defence products in Russia and abroad.

In 2019 the company has been carrying out its work in the area of marketing and exhibitions in a proactive manner, i.e. it has taken part in 16 exhibitions, and 5 more are to be attended by the end of the year. As a result of the inaugural exhibition DSE Vietnam 2019 in Hanoi, the organizers acknowledged that the unified Russian exhibit, arranged by Rosoboronexport, was the best one there.



Besides, Rosoboronexport became a participant of the first ever Russia-Africa Summit, where it had productive meetings with high level delegations from the continent's countries.

The special exporter has presented unique products of Russian enterprises at specialized international security fora in Moscow and Ufa. Foreign delegations were shown new sophisticated equipment to counter unmanned aerial vehicles, face recognition assets and other special solutions to fight terrorism and organized crime.

'In 2019 Rosoboronexport continued to strengthen its image of

a reliable partner, a dynamic and flexible company, ready to run business effectively even in conditions of immense pressure from the part of competitors. We introduce successfully those financial arrangements, which make our cooperation with partners independent from unfavourable external conditions,' added Alexander Mikheev. 'This brings positive results. Despite sanctions, we have completed supplies of all the components of the S-400 Air Defence Missile Systems to Turkey ahead of time, created and launched the first world's joint venture on production of the Kalashnikov assault rifles of the 'two hundredth' series in India.'

It is important to remember that only Rosoboronexport has the right to supply the world market with a full range of arms and military equipment manufactured by Russia's defense industrial complex and approved to be exported. Rosoboronexport accounts for more than 85% of Russia's arms exports. Rosoboronexport is among the major operators in the world market for arms and military equipment.

Rosoboronexport was set up by RF President's Decree as a federal state unitary enterprise tasked to implement the national policy in the area of military-technical cooperation between Russia and foreign countries. Since 1 July 2011 Rosoboronexport has been operating as an open joint stock company. Rosoboronexport operates under the strict supervision of the Russian President, the Russian Government and in full conformity with the UN arms control treaties and the relevant international agreements.

The official status of the exclusive state intermediary agency gives Rosoboronexport unique opportunities to expand long-term mutually beneficial cooperation with foreign partners, provide guaranteed state support of all export-import opera-

Rosoboronexport pays great attention to both major billion dollars contracts and small deals. The company seeks to operate flexibly and efficiently by using modern and advanced marketing and customer settlement methods. The special exporter cooperates with more than 700 Russian defense-industrial enterprises and organizations, which enables it to offer partner countries the comprehensive and cost-effective solutions for strengthening their defense capability and national security.



tions, and strengthen Russia's leadership in the world arms market.

The main result of biography of Rosoboronexport, despite the difficult economic conditions and fierce, often unfair, competition in the global arms market, that company have managed not only to carry its sales, but also significantly enlarge its footprint in the traditional and new arms markets. Through integrated marketing strategies, company have ensured that order book today exceeds US\$ 46 billion.

The special exporter makes painstaking efforts on a daily basis to increase Russian arms exports resulting in more than a thousand contract documents signed with foreign customers every year. Over the period of its operation in the international market, Rosoboronexport has delivered hundreds of thousands of units of military equipment and weapons



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worth more than US\$ 120 billion to 115 countries.

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By concluding export contracts, Rosoboronexport supports the Russian defense industry, which is especially important under difficult conditions in the global market. High-tech products are in increased demand in the world arms market today and thus the company is interested in developing smart manufacturing in Russia. In addition, Rosoboronexport is actively involved in a number of charitable and sponsorship projects. The company provides assistance to military hospitals, military historical museums, and children's educational institutions. Rosoboronexport supports

major sporting events and various sports federations, acts as sponsor and partner of the largest industrial exhibitions and cultural events held in Russia and abroad.

Rosoboronexport pursues a marketing strategy targeted to expand the geography, range and volume of export deliveries. A number of special programs and projects for exporting products to specific countries have been developed based on a comprehensive analysis of the arms markets and foreign partners' needs. Rosoboronexport seeks to operate



flexibly and efficiently in the market, using modern and advanced marketing and customers' settlement methods.

Foreign customers are offered package solutions for national systems intended to defend land, air and seaside borders, which feature the optimal trade-off between cost and performance. These solutions may include both the supply of military products and services and organization of licensed production in customer countries,

the setting-up of joint ventures to manufacture and maintain equipment, as well as joint R&D efforts. Rosoboronexport widely uses the optimal offset programs. With regard to foreign customers' interests and the opportunities of the Russian defense industrial complex to increase its exports, Rosoboronexport pays much attention both to major billion-dollar contracts and small deals worth the hundreds of thousands to several millions of dollars.

/RA&MG/

Core areas of activities of Rosoboronexport

- Export / import of all types of conventional weapons, military and dual-use equipment and services.
- Organization of licensed production of armaments and military equipment abroad, joint R&D efforts with foreign partners.
- Maintenance and repair of earlier supplied weaponry and military equipment.
- Modernization of Russian-made weapons and military equipment.
- Training foreign specialists in Russia and customer countries in the operation and maintenance of supplied military equipment.
- Technical assistance in the construction of military infrastructure facilities: defense plants, airfields, depots, ranges, training centers.

RUSSIAN COUNTER-DRONE SYSTEMS

Within the international aviation and space exhibition Dubai Airshow 2019 Rosoboronexport (part of the Rostec State Corporation) presented Russian systems, designed for the counteraction to unmanned aerial vehicles of all types.

Today, unmanned aerial vehicles pose threats not only in the military sphere. In our daily life we see more and more examples when drones are used for illegal purposes, i.e. for espionage, transportation of cargoes and even for terrorist attacks. Taking that into account, industry enterprises, including Rostec, are creating a wide range of assets of electronic countermeasures – on different platforms, in various form-factors, as well as highly mobile systems, which may be quickly deployed on civilian installations and industrial enterprises. Such systems are capable of detecting drones of different sizes, identify them, overtake control and effectively disable drones. The demand for such products in the world is extremely high, and in the next 5 years it is esti-

'Just recently terrorists in the Middle East showed that disregard of this problem may lead to critical outcomes for strategic industries of a separate state and even influence the world financial market. Classical defensive assets turned out to be helpless against this challenge, which was admitted by their producers. Rosoboronexport reacted to the situation quickly and prepared unique solutions to protect vital installations of transportation, fuel and atomic infrastructure from attacks. We have already sent to our partners in the Middle East, North Africa and other regions our proposals, including services on building a layered point and area system of electronic countermeasures. This system will provide a reliable protection of territories and sites from separate UAVs, as well as from their groups, including swarms of drones.'

Alexander Mikheev

ated at the level of 2 billion dollars,' said Rostec's General Director Sergey Chemezov.

Practice, including the combat experience of Russian armed forces in Syria, shows that small and miniature UAVs are widely used not only by regular armies, but also by terrorist organizations and criminal groups. Low cost, availability and friendly control interface make drones one of the most effective assets for achieving illegal goals.

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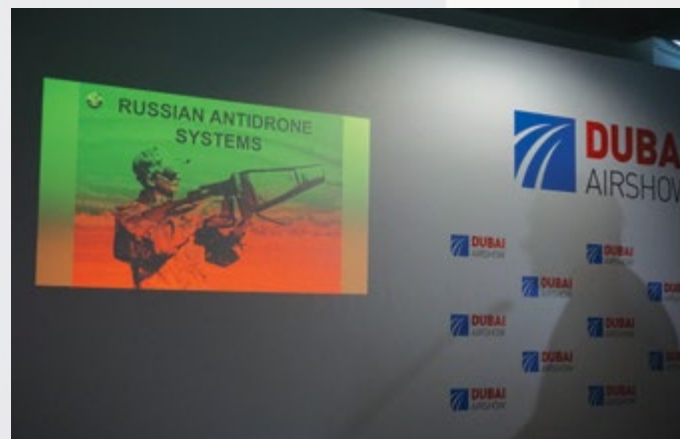
The layered point and area system of electronic countermeasures against small-sized unmanned aerial vehicles may, at customer's request, include a number of elements, which differ in their radius of action, mobility and characteristics of covered sites and territories.

Area coverage of territories is provided by the Repellent electronic warfare complex, which is developed and produced by JSC Defensive Systems.

The complex detects the UAV itself and the ground control station via their transmitted radio signals,



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determines UAV type and the direction of its motion, after which it suppresses its data links, depriving it of communication, control and navigation. The distinctive feature of this complex is its ability to jam all UAV's control circuits.

Repellent is an asset with a big radius of action, i.e. it is capable of detecting and suppressing UAVs at a distance of no less than 30 kilometers. The complex may operate in any season, all climate zones and in the most unfavourable weather conditions, including dust, rain and strong wind.

To cover vital installations, which may be airfields, sites of atomic or energy complex, etc., Rosoboronexport offers a wide spectrum of products of the Avtomatika Concern.

The Sapsan-Bekas mobile multipurpose complex of countering unmanned aerial vehicles uses both passive and active means of detection. It provides for a guaranteed detection of all types of UAVs, including the ones with a minimized access into radio networks. All the assets of target detection and influence are unified by an automated workstation of control and information display. The complex is capable of carrying all-round observation and scanning an assigned sector.

Sapsan-Bekas may detect UAVs by means of electronic intelligence at a range of no less than 20 kilometers and means of active radio location at a distance of 10 kilometers. The complex also includes systems of optical and electronic recognition of UAVs, i.e. a video camera of a visible spectrum and a cooled thermal scope.

The range of drones' recognition by optical assets is up to 8 kilometers.

The range of jamming of control and navigation circuits depends on the offered configuration and may reach 30 kilometers, varying in line with customers' requirements. Besides, the complex may act as a target designation asset for other electronic countermeasures and air defence systems.

The Kupol and Rubezh-Avtomatika complexes carry out continuous observation and create an umbrella dome over the installation. This is a barrier, which cannot be overcome, and which is capable of repelling attacks of separate drones and their groups, coming from different directions and heights in a radius of no less than 3 kilometers.

The Luch portable complex may be quickly deployed and used for the protection of various installations. It detects UAVs and creates interferences, which jam control and navigation circuits in an assigned sector at a range of no less than 6 kilometers.

The Pishchal portable complex performs similar missions. Its weight is only 3.5 kilograms, owing to which it is one of the lightest products, offered in the market. This means that Pishchal may be included in individual sets of equipment. The range of jamming of control and navigation circuits of UAVs is 2 kilometers.

A mock-up model of the Pishchal complex is demonstrated on Rosoboronexport's exhibit, where it will be possible to obtain comprehensive technical information on all the Russian assets to counter unmanned aerial vehicles and discuss options of cooperation. /RA&MG/



ANNUAL PHOTO ALMANAC FOR MILITARY-TECHNICAL COOPERATION



The new project of the United Industrial Edition is an annual photo almanac dedicated to the most important and most striking in military-technical cooperation between Russia and foreign countries. The Almanac is an annual supplement to the magazine 'Russian Aviation & Military Guide'.

The almanac includes key partners and supplies, new military products, major contracts and programs, participation in biggest international salons and exhibitions, supplies of dual-use products and much more. The almanac will be released in February 2020.

ROSOBORONEXPORT: SERVICE WEAPONS FROM A RELIABLE SUPPLIER

On September 17, 2019, in the framework of the research and practice conference, devoted to the 100th anniversary of Mikhail Kalashnikov, JSC Rosoboronexport, part of the Rostec State Corporation, signed an agreement on cooperation and partnership with Non-profit Organization 'M.T. Kalashnikov Union of Russian Gunmakers'. During the Army 2019 International Military-Technical Forum held near Moscow, Russian special arms exporter Rosoboronexport announced the signing of a number of contracts with its partners for the supply of small arms and close combat weapons abroad.

'The Russian industry produces the full range of close combat weapons which have proved their indispensability in actual combat situations, thereby earning reputation and respect in many countries worldwide. The new contracts not only demonstrate strong and steady demand for small arms and grenade launcher weapons and their ammunition produced by Russian arms makers, but also indicate a global trend of increasing demand for effective equipment to counter crime and terrorism. Rosoboronexport is ready to meet this demand in full.'

Alexander Mikheev

Rosoboronexport already has tangible results of its efforts to promote civilian and service weapons: in 2018, we signed the first export contract for the supply of Russian hunting sniper rifles and ammunition for them,' said Rosoboronexport's Director General Alexander Mikheev at ARMY 2019.

After the adoption of amendments to the Russian Law on Weapons In 2017, Rosoboronexport was granted the right to export civilian weapons, in addition to military-grade ones, to law enforcement and security forces of the partner countries. This created the most comfortable conditions when concluding package supply contracts and enabled

the company's partners to acquire the full range of Russian weapons they need from one reliable exporter. Rosoboronexport is actively promoting Russian-made civilian and service weapons on the world market: dozens of commercial offers for the ORSIS T-5000 rifles, Saiga-9 and Saiga-12 carbines, MR-18 shotguns, Viking pistols, many other weapons and their ammunition are under consideration by potential foreign buyers. There is also interest among foreign customers in Vepr carbines, civilian versions of the Tigr sniper rifles.

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The signing of the agreement on cooperation and partnership with Non-profit Organization 'M.T. Kalashnikov Union of Russian Gunmakers' aims to increase the volume of exports to the external market of non-military and service

'The market of non-military and service weapons is the new area of our work. Nevertheless, by now Rosoboronexport has already fulfilled one contract on this subject matter and has prepared over 30 commercial offers to partners from 20 countries in the amount of around 2.5 billion roubles. I am confident that by means of our joint efforts with the Union of Russian Gunmakers we will be able to increase considerably the share of Russian products in this fairly concentrated market segment and to support our enterprises.'

Alexander Mikheev

Vepr-12 VPO-205-01 Smoothbore Weapons. Combat Semiautomatic Smoothbore Carbines

VPO-205 is currently one of the most effective tactical smoothbore rifles, capable of accomplishing a wide range of missions facing security services. Its modular design allows tailoring the weapons to the specific needs of the customer, while the availability of special brackets ensures the detachable equipment is mounted in a manner that meets the requirements of the user. The weapon is reliable and demonstrates flawless operation when firing all types of 12 Gauge cartridges. The steel frame patterned after the RPK light machine gun provides the weapon's immunity to deformations, as well as its fault-free operation in various adverse conditions.



Main characteristics	
Barrel length, mm	570
Caliber	12x76 mm
Sighting range, m, max	100
Full length, mm	1,117
Length, buttstock folded, mm	865
Barrel length, mm	
Empty weight, kg	4.4
Magazine capacity, cartridges	8

SAIGA 9
Self-loading carbine

The Saiga-9 self-loading carbine is a derivative of the PP-19-01 Vityaz-SN submachine gun. Its design utilizes the blowback operation principle. The weapon is fitted with a metal skeletal folding stock, plastic fore grip and a pistol grip. It features an open sight. The carbine has a receiver-mounted Picatinny rail to allow for optical and collimator sights to be installed at user's discretion. A lock has been introduced in the design of the trigger to exclude butt-folded firing.

	
Main characteristics	
Cartridge	9x19
Effective range, m	min 100 m
Overall length, mm	827
Length, butt folded, mm	589
Barrel length, mm	367
Empty weight, kg	3
Magazine capacity, cartridges	10

Rosoboronexport is actively promoting Russian-made civilian and service weapons on the world market: dozens of commercial offers for the ORSIS T-5000 rifles, Saiga-9 and Saiga-12 carbines, MR-18 shotguns, Viking pistols, many other weapons and their ammunition are under consideration by potential foreign buyers. There is also interest among foreign customers in Vepr carbines, civilian versions of the Tigr sniper rifles.

weapons, as well as cartridges for them. Besides, the agreement shall serve the purpose of better understanding between the main Russian exporter of special products and manufacturing enterprises constituting the Union of Gunmakers on the issues of foreign customers' needs and market trends.

'The market of non-military and service weapons is the new area of our work. Nevertheless, by now Rosoboronexport has already fulfilled one contract on this subject

matter and has prepared over 30 commercial offers to partners from 20 countries in the amount of around 2.5 billion roubles. I am confident that by means of our joint efforts with the Union of Russian Gunmakers we will be able to increase considerably the share of Russian products in this fairly concentrated market segment and to support our enterprises,' said Alexander Mikheev, who is also holding position of deputy chairman of the Union of Russia's Machine Builders.

Rosoboronexport undertakes pro-active marketing work in the world market on the issue of exporting non-military and service weapons of Russian production. Potential foreign customers are currently considering commercial offers on various modifications of the Saiga carbines, guns MR-18, MR-135, MR-156, MR-27 and MR-43, Viking pistols developed and produced by the Kalashnikov Concern, part of the Rostec Corporation, rifles ORSIS T-5000M, Vepr carbines, cartridges for them and various accessories. Foreign customers are also explicitly interested in civilian modifications of the Dragunov sniper rifle under the trademark of Tigr.

The practice of the longstanding work of Rosoboronexport shows that the company has all the necessary competencies to export not only military equipment and materiel, but also civilian, as well as dual-use products. The main potential customers

Rosoboronexport's long-term practice suggests that the company has all the necessary competencies to export not only weapons and military equipment, but also civilian and dual-use products. The main customers of civilian and service weapons are the police, special services of foreign countries, as well as numerous sports and hunting clubs in North and South America.

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to export not only weapons and military equipment, but also civilian and dual-use products. The main customers of civilian and service weapons are the police, special services of foreign countries, as well as numerous sports and hunting clubs in North and South America. /RA&MG/



TIGR 308
Carbine

The Tigr 308, ver. 02, is patterned after the SVD sniper rifle. It has a plastic skeletal butt with a rotatable cheek pad. The fore grip is made of plastic. The receiver has a side rail for optical sights. The weapon features an open sight. The barrel is fitted with a small-size flame suppressor.

	
Main characteristics	
Cartridge	.308WIN
Effective range, m	Max 300
Overall length, mm	1120 or 1175
Barrel length, mm	565 or 620
Empty weight, kg	3.9
Magazine capacity, cartridges	10

РОССИЙСКО-ТУРЕЦКИЙ ДЕЛОВОЙ ЖУРНАЛ TÜRK-RUS İŞLETME DERGİSİ

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РОССИЙСКО-ТУРЕЦКИЙ ДЕЛОВОЙ ЖУРНАЛ TÜRK-RUS İŞLETME DERGİSİ

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ЖУРНАЛ ДЕЛОВОГО СОТРУДНИЧЕСТВА ДВУХ ДЕРЖАВ

Объединенная промышленная редакция реализует проект по выпуску "Российско-Турецкого делового журнала", который выступает в роли информационно-аналитического сопровождения по развитию взаимовыгодных деловых связей между российскими и турецкими предпринимателями.

Материалы в журнале публикуются параллельно на русском и турецком языках. Журнал поступает по адресной целевой рассылке в структуры государственной власти России и Турции, связанные с реализацией промышленной и экспортной политики, в союзы международного сотрудничества, торгово-промышленные палаты, международные и национальные инвестиционные фонды, крупнейшим игрокам взаимного делового сотрудничества между Россией и Турцией.

Ключевые темы "Российско-Турецкого делового журнала":

- динамика и тенденции торгово-экономических отношений;
- меры государственной поддержки и содействия международному бизнесу обеих стран;
- инвестиционные проекты, программы, предложения;
- совместные предприятия;
- опыт реализованных проектов российско-турецкого делового сотрудничества;
- межрегиональные программы и проекты;
- изменения в законодательстве двух стран;
- вопросы финансирования международных промышленных проектов;
- сотрудничество в области высоких технологий;
- развитие культурных, туристических, молодежных программ;
- предложения по проектам сотрудничества, отраслевой консолидации, совместным разработкам;
- презентация новой продукции высокого экспортного потенциала.

Первый номер "Российско-Турецкого делового журнала" выйдет в свет 22 апреля 2020 года.

Среди главных тем номера: "Военно-техническое сотрудничество", "Инвестиции", "Безопасность", "Энергетика", "Строительство", "Туризм" и другие.

Выход первого номера приурочен к проведению Международного аэрокосмического салона EURASIA AIRSHOW 2020 (22-26 апреля 2020 года, Анталья).

İKİ YETKİLİ İŞ İŞBİRLİĞİ DERGİSİ

"Türk-Rus İşletme Dergisi", Rus ve Türk girişimcileri arasında karşılıklı yarar sağlayan iş ilişkilerinin geliştirilmesine yönelik bilgi ve analitik bir destektir.

Dergide materyaller Rusça ve Türkçe olarak paralel olarak yayınlanmaktadır. Dernek, Rusya ve Türkiye arasında, sanayi ve ihracat politikasının, uluslararası işbirliği birliklerinin, ticaret ve sanayi odalarının, uluslararası ve ulusal yatırım fonlarının, Rusya ve Türkiye arasındaki karşılıklı ticari işbirliğinin en büyük oyuncularına uygulanmasına ilişkin devlet yetkililerine gönderilmektedir.

Anahtar konular:

- ticaret ve ekonomik ilişkilerin dinamikleri ve eğilimleri;
- her iki ülkenin uluslararası ticaretine devlet destek ve yardım önlemleri;
- yatırım projeleri, programlar, teklifler;
- ortak girişimler;
- Rus-Türk işbirliğinin uygulanmış projelerinin deneyimi;
- bölgelerarası programlar ve projeler;
- iki ülkenin mevzuatındaki değişiklikler;
- uluslararası endüstriyel projelerin finansmanı;
- Yüksek teknolojiler alanında işbirliği;
- Kültürel, turistik ve gençlik programlarının geliştirilmesi;
- işbirliği projeleri, sektörel konsolidasyon, ortak kalkınma önerileri;
- Yüksek ihracat potansiyeli olan yeni ürünlerin sunumu.

"Türk-Rus İşletme Dergisi" ilk sayısı 22 Nisan 2020'de yayınlanacak. Konunun ana başlıkları arasında:

'Askeri-teknik işbirliği', 'Yatırım', 'Güvenlik', 'Enerji', 'İnşaat', 'Turizm' ve diğerleri.

İlk sayının EURASIA AIRSHOW 2020 Uluslararası Havacılık ve Uzay Salonu (22-26 Nisan 2020, Antalya) ile çıkışması zamanlandı.



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In 2020

ISSUE	RELEASE DATES	ADDITIONAL DISTRIBUTION
‘RA&MG’ №01 (50)	January 20th	DEFEXPO INDIA 2020 (05-08.02.2020, India)
‘RA&MG’ №02 (51)	January 30th	SINGAPORE AIRSHOW 2020 (11-16.02.2020, Singapore)
‘RA&MG’ №03 (52)	March 01th	DIMDEX 2020 (16-18.03.2020, Qatar, Doha)
‘RA&MG’ №04 (53)	March 10th	ArmHiTec 2020 (26-28.03.2020, Armenia, Yerevan)
‘RA&MG’ №05 (54)	March 15th	FIDAE 2020 (31.03-05.04.2020, Chile, Santiago)
‘RA&MG’ №06 (55)	March 15th	SOFEX 2020 (31.03-02.04.2020, Jordan, Amman)
‘RA&MG’ №07 (56)	April 05th	DSA 2020 (20-23.04.2020, Malaysia, K.Lumpur)
‘RA&MG’ №08 (57)	April 08th	Eurasia Airshow 2020 (22-26.04.2020, Turkey, Antalya)
‘RA&MG’ №09 (58)	April 25th	ILA Berlin Air Show 2020 (13-17.05.2020, Germany, Berlin)
‘RA&MG’ №10 (59)	May 10th	HELIRUSSIA 2020 (21-23.05.2020, Russia, Moscow)
‘RA&MG’ №11 (60)	May 12th	KADEX-2020 (28-31.05.2020, Kazakhstan, Astana)
‘RA&MG’ №12 (61)	May 20th	EUROSATORY-2020 (08-12.06.2020, France, Paris)
‘RA&MG’ №13 (62)	July 05th	FARNBOROUGH Airshow 2020 (20-24.07.2020, Great Britain, London)
‘RA&MG’ №14 (63)	August 10th	ARMY-2020 (23-29.08.2020, Russia, Moscow)
‘RA&MG’ №15 (64)	August 20th	GIDROAVIASALON 2020 (September 2020, Russia, Gelendzhik)
‘RA&MG’ №16 (65)	August 30th	ADEX 2020 (08-10.09.2020, Azerbaijan, Baku)
‘RA&MG’ №17 (66)	September 01th	Africa Aerospace and Defence 2020 (16-20.09.2020, South Africa, Pretoria)
‘RA&MG’ №18 (67)	September 10th	ADAS 2020 (23-25.09.2020, Philippines, Manila)
‘RA&MG’ №19 (68)	September 15th	Istanbul Airshow 2020 (24-27.09.2020, Turkey, Istanbul)
‘RA&MG’ №20 (69)	October 05th	EURONAVAL 2020 (20-23.10.2020, France, Paris)
‘RA&MG’ №21 (70)	October 20th	INDO DEFENCE 2020 (04-07.11.2020, Indonesia, Jakarta)
‘RA&MG’ №22 (71)	October 25th	Airshow China 2020 (10-15.11.2020, Zhuhai, China)
‘RA&MG’ №23 (72)	November 02th	BIAS 2020 (18-20.11.2020, Bahrain, Manama)
‘RA&MG’ №24 (73)	November 10th	IDEAS 2020 (24-27.11.2020, Pakistan, Karachi)
‘RA&MG’ №25 (74)	November 25th	EDEX 2020 (07-10.12.2020, Egypt, Cairo)
‘RA&MG’ №26 (75)	November 30th	Expo Naval 2020 (December 2020, Chile, Valparaiso)



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Rosoboronexport is the sole state company in Russia authorized to export the full range of defense and dual-use products, technologies and services. Rosoboronexport accounts for over 85% of Russia's annual arms sales and maintains military-technical cooperation with over 100 countries worldwide.